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CONTRIBUTING TO ECOLOGICAL INTEGRITY – ENVIRONMENT CANADA'S PROTECTED AREAS: A DISCUSSION PAPER

Prepared by
C.D.A. Rubec and A.M. Turner

Canadian Wildlife Service
2003

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The Canadian Wildlife Service

The Canadian Wildlife Service of Environment Canada handles wildlife matters that are the responsibility of the Canadian government. These include protection and management of migratory birds as well as nationally significant wildlife habitat. Other responsibilities are endangered species, control of international trade in endangered species, and research on wildlife issues of national importance. The service cooperates with the provinces, territories, Parks Canada and other federal agencies in wildlife research and management.

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EXECUTIVE SUMMARY

The protection of the ecological integrity of Canadian landscapes and waters is essential to the economic prosperity and ecological health of the nation. About 8% of the nation has been set aside for environmental conservation objectives, almost half of which is through federal initiatives that complement provincial, territorial, and non-governmental programs. Surprising to many people is the fact that almost 45% of this area is managed for wildlife conservation objectives — contrary to a public perception that "protected areas" means "parks."

The Canadian Wildlife Service (CWS) of Environment Canada is one of Canada's largest conservation agencies, second only to the Parks Canada Agency. CWS owns or manages, directly or in cooperation with provincial and territorial governments, 51 National Wildlife Areas (NWAs) and 92 Migratory Bird Sanctuaries (MBSs) across the nation, encompassing about 11.5 million hectares. This robust federal network of protected wildlife areas, set aside under the *Migratory Birds Convention Act* and the *Canada Wildlife Act*, has developed since the establishment of Canada's first MBS in 1919 and first NWA in 1966.

The NWA and MBS network in Canada complements a wide range of provincial, territorial, environmental non-governmental and aboriginal initiatives for wildlife habitat protection. It also complements programs focused on habitat conservation that are available through Environment Canada, through initiatives such as the Habitat Stewardship Program, the Ecological Gifts Program, and the North American Waterfowl Management Plan, as well as the North American Bird Conservation Initiative. The CWS Habitat Conservation Program, delivered through these protected areas and complementary programs, is envisaged to conserve, protect, and enhance habitat essential to the protection and maintenance of wildlife populations and the recovery of species at risk.

Today, however, the NWA and MBS network functions as a pale shadow of its intended vision. These areas are operating in survival mode, characterized by declining ecological integrity, a lack of resources to provide effective management, a poor public profile, and weak operational links to other current conservation programs. The NWA–MBS program has been in decline since 1977, with a drop from 27 to 12 staff positions, a 90% drop in capital resources supporting the network, and essentially no increase in operational budgets over the 25-year period.

It is under these circumstances that a review of and a reinvestment plan for Environment Canada's network of protected areas — including NWAs, MBSs, and future Marine Wildlife Areas (MWAs) — are required to help refocus and reenergize the Department's responsibilities in the area of habitat conservation. Although, in recent years, the Department has succeeded in acquiring new funding for a variety of new and existing habitat programs, including the Habitat Stewardship Program, the Ecological Gifts Program, and new facilities for the National Wildlife Research Institute, its high-profile protected areas, represented by NWA and MBS sites, are poorly supported.

This report provides a review of the historical development of the NWA and MBS network, outlines the criteria used for site selection, and describes the current management character of these sites. Annexed information is provided on the relationship of Environment Canada's network to overall habitat protection in Canada.

The report proposes investment in the future of the NWA, MBS, and MWA program, in the context of a broader vision for protected areas and habitat conservation. A commitment to the core functions of the NWA–MBS network plus capacity building are required to ensure that the NWA–MBS–MWA

network becomes a key mechanism for protecting critical biodiversity and species at risk in Canada. This proposal addresses the need to ensure program integrity and the need to increase the network's visibility and value to the nation. An annual and permanent commitment of additional resources for program operations — supporting salaries for new additional staff — and new capital expenditures is proposed.

INTRODUCTION

Habitat conservation is an integral component of the mission of Environment Canada's Canadian Wildlife Service (CWS). The Department's Habitat Conservation Program is delivered through a mix of policy, stewardship, and direct protected areas initiatives. The mission of this program is "to conserve, protect, and enhance habitat essential to the protection and maintenance of wildlife populations and recovery of species at risk." The program is delivered by CWS headquarters and regional staff within a landscape approach. This approach recognizes that protection of the ecological integrity of such landscapes is vital to wildlife in Canada.

In support of these initiatives, CWS has adopted a policy paper entitled "Canadian Wildlife Service: Habitat Conservation Program, Strategic Direction" (Environment Canada 2000). Three strategies are articulated in this document: (1) protected areas; (2) sustainable land use; and (3) advancement and communication of the science of habitat conservation. The protection of habitats supporting migratory wildlife and species at risk is a fundamental part of the Department's business plan. The success of Environment Canada's habitat initiatives is thus linked to the skills, resources, and knowledge of its habitat program staff.

This report outlines the current status and delivery of the protected areas component of the CWS Habitat Conservation Program and mission. It is, in part, based upon a discussion paper developed by Turner (2000), updated to the end of the 2002–2003 fiscal year. Environment Canada's protected areas initiatives "identify, designate and manage protected areas encompassing the terrestrial, fresh water and marine ecosystems of Canada." The main focus is on the Department's responsibilities for National Wildlife Areas (NWAs), Migratory Bird Sanctuaries (MBSs), and Marine Wildlife Areas (MWAs).

The first NWA in Canada was established in 1966 under the *Canada Wildlife Act* to conserve essential habitat for migratory birds and other wildlife species, especially endangered wildlife. The NWA program was the first Environment Canada program to explicitly protect wildlife habitat, one that has added an important component to the government's federal responsibilities for protecting the ecological integrity of Canadian landscapes and species at risk. Since the program's inception, 51 NWAs, covering a total area of almost 529 000 ha, have been established in all provinces except Newfoundland and Prince Edward Island (Figure 1). Much of this area was established in the 1966–1976 period.

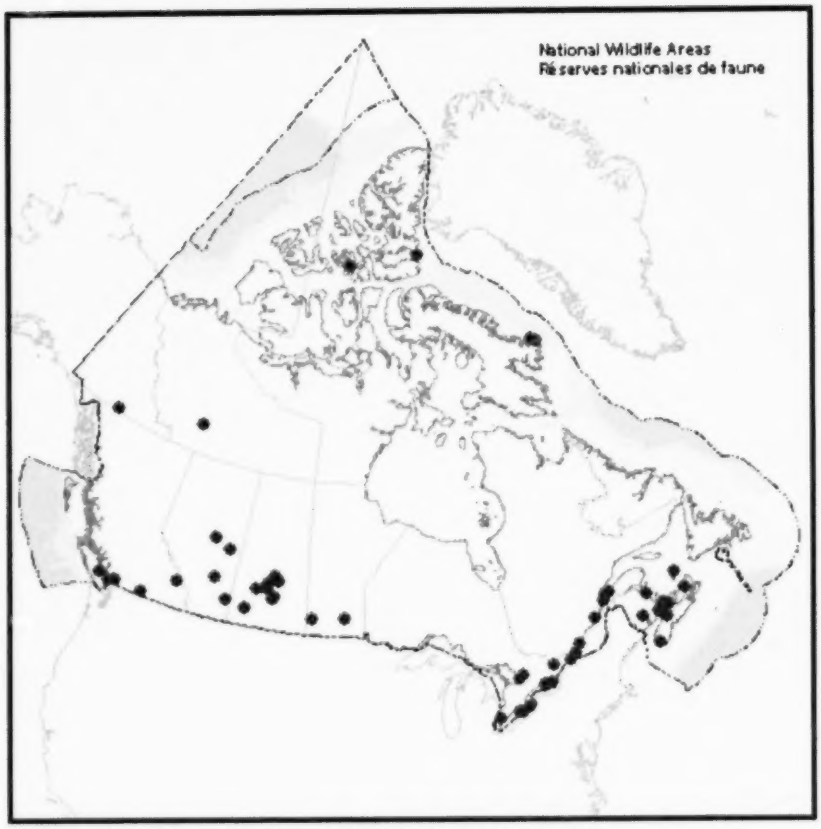

Figure 1: Location of National Wildlife Areas in Canada

These NWAs, which are usually owned and managed by Environment Canada, complement a national network of 92 MBSs that are set aside to support the seasonal habitat needs of migratory geese, ducks, and other waterfowl. These MBSs comprise over 11 million hectares of land and waters in Canada (Figure 2). Many MBSs are co-managed or under the jurisidiction and/or ownership of provincial or territorial governments (Environment Canada 1994).

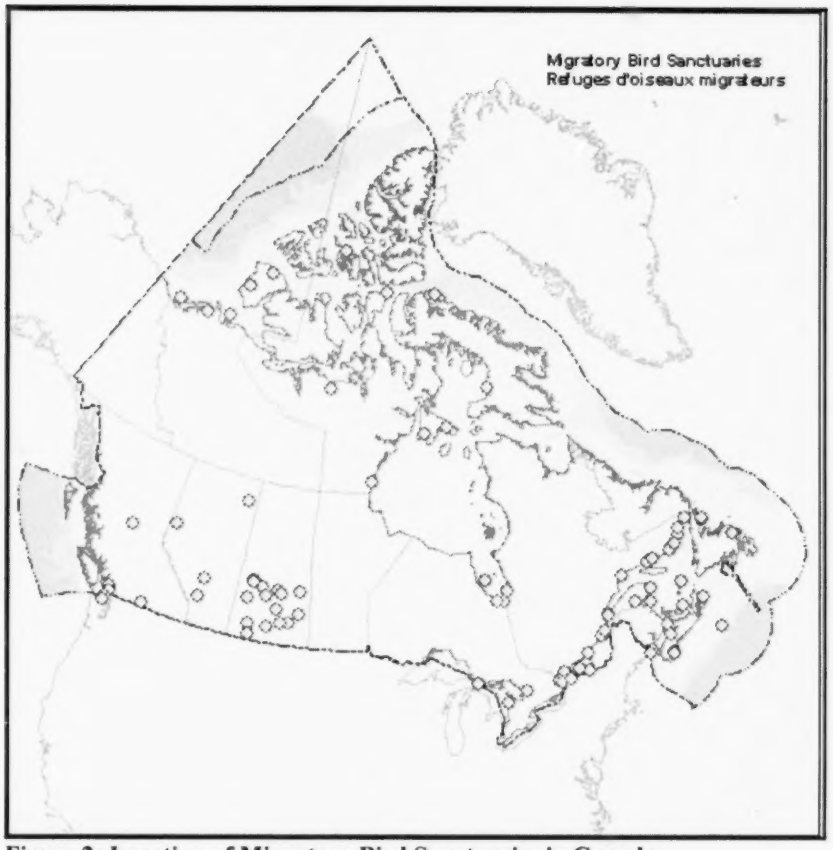

Figure 2: Location of Migratory Bird Sanctuaries in Canada

Amendments to the *Canada Wildlife Act* also permit the establishment of MWAs in Canada's territorial waters, but none has yet been created.

Collectively, NWAs, MBSs, and MWAs are an important contribution to the national efforts to protect the ecological integrity of Canadian landscapes. This protected areas network complements other Environment Canada habitat policies and national conservation initiatives, including land stewardship programs and partnership ventures. CWS's protected areas programs include contributions to the North American Waterfowl Management Plan (NAWMP), which has protected over 850 000 ha of habitat since 1986; the new Habitat Stewardship Program, initiated in the summer of 2000, which has resulted in the protection of over 94 000 ha of critical habitat for species at risk; the Ecological Gifts Program, which has seen over 23 000 ha of ecologically sensitive lands valued at $67 million protected through tax-deductible donations to Crown agencies, charities, and municipalities since 1995; and numerous other regional partnership initiatives.

Today, however, the NWA and MBS network functions at a level far below its original intended vision. This protected areas network is operating in survival mode, characterized by declining ecological integrity, a lack of resources to provide effective management, a poor public profile, and weak operational links to other current conservation programs. It is under these circumstances that a

review of and reinvestment plan for Environment Canada's protected areas network — including NWAs, MBSs, and MWAs — are required to help refocus and reenergize Environment Canada's responsibilities in the area of habitat conservation. In the 2000–2002 period, the Department succeeded in acquiring new funding for a variety of new habitat programs, such as the Habitat Stewardship Program, the Ecological Gifts Program, and new facilities for the National Wildlife Research Institute. However, its high-profile protected areas, represented by NWA and MBS sites, remain poorly supported. The review is timely, given the government's interest in responding effectively to the 2000 Report of the Panel on the Ecological Integrity of Canada's National Parks and the October 2001 Great Lakes – St. Lawrence Basin Report of the Commissioner of the Environment and Sustainable Development.

The NWA network is a particular focus of this paper. In the 2000–2003 period, major national non-government organizations (NGOs) directed the public's attention to the need for reinvestment and support for Canada's NWAs. Wildlife Habitat Canada, in its November 2001 "Status of Wildlife Habitats in Canada" report, the Sierra Club of Canada, in its May 2001 "Environment Report Card," and the Canadian Nature Federation, in its 2002 report "Conserving Wildlife on a Shoestring Budget," are examples of organizations that are leading such calls for action. The Green Budget Coalition of NGOs has considered inclusion of reinvestment in the NWA network as a key item in its Federal Budget proposals.

> "*Canada must invest in its natural spaces or we will lose them forever.*" — Canadian Nature Federation, quoted in Sierra Club Report Card press release, 19 June 2001

> "*There has been no money allocated to new land acquisition by Environment Canada under their Migratory Bird Sanctuary or National Wildlife Areas programmes since 1984. The test of Canada's commitment to protected areas is not its promises, but budgetary allocation.*" — Sierra Club 9th Annual Rio Report Card press release, 19 June 2001

> "*The current lack of capacity and resources within the Canadian Wildlife Service is seriously impeding its ability to effectively protect this network...the Government of Canada [should] allocate to Environment Canada a minimum annual budget of $35 million for staff, operations and maintenance, expansion and capital costs for the NWA-MBS-MWA network.*" — Canadian Nature Federation, September 2002

In October 2001, the Office of the Commissioner of the Environment and Sustainable Development of the Auditor General for Canada reported the following, focused on NWAs in the Great Lakes – St. Lawrence basin:

> "*National wildlife areas and migratory bird sanctuaries are important biological resources in the [Great Lakes – St. Lawrence] basin...We are concerned about the way they are managed. We conclude that the ecological integrity of these areas is at risk and their potential as a conservation tool is unfulfilled. Environment Canada lacks the personnel and resources to manage them well.*" —Commissioner of the Environment and Sustainable Development – Office of the Auditor General Report, paragraph 5.3.32, 4 October 2001

Clearly, there is significant national support for and interest in the federal government taking action to address the issues surrounding the management and ecological integrity of our NWAs.

This report reviews the NWA, MBS, and MWA program in the context of a broader vision for protected areas and habitat conservation.

NETWORK PLANNING

Criteria for establishment of NWAs were adopted by Environment Canada in 1998 and are summarized in Appendix A. Criteria for MBSs as outlined in the *Migratory Birds Convention Act* and site identification considerations for MWAs are also summarized in Appendix A. However, a broad protected areas network plan entails more than acting on establishment criteria in an opportunistic manner. A network plan is a systematic approach to the establishment and management of protected areas within the context of an ecosystem approach to landscape management.

Systematic characteristics for a protected areas network are recommended by the World Conservation Union (Davey 1998):

1. A protected areas network should strive to be representative, comprehensive, and balanced (i.e., encompass the full range of identified values).
2. A network may strive to be adequate to maintain the identified values (e.g., spatial patterns of network), with appropriate management, and be capable of supporting the identified ecological processes and components.
3. All individual protected areas should add value (in quality as well as quantity) to the entire network.
4. A network needs to include standard management objectives, policies, and classifications.
5. A network includes goals, targets, and measurable indicators of achievement for the continued development of the system.
6. A network's completion can be closed or open-ended.
7. A network plan should provide a basis to assess and accommodate candidate protected areas.
8. A network plan should provide objective assessment procedures of how well current areas are meeting or contributing to the network goals and identifying gaps in the network.
9. A network plan must be flexible to accommodate changes in priorities and future opportunities.

A protected areas network plan can accommodate both establishment and management activities. Ecosystem representation, popular with many park system plans, is *not* by necessity the key component of a network plan. Ecosystem representation is merely a statement of a desired value for those types of networks. The NWA network in Canada to date has been based on values related to key wildlife habitats that in most cases have been unique or special as opposed to representative of any specific habitat types or conditions. The MBS network has established areas critical to the migration of species listed under the *Migratory Birds Convention Act*. There are no MWAs yet designated in Canada under the *Canada Wildlife Act*.

Certain aspects of a network plan may be measured in the context of other protected areas, rather than within the network itself. For example, whether any one protected area adequately protects values may be best judged in the context of the combined effort of numerous protected areas in that region. Thus, Canada's NWAs and MBSs do not act in isolation but contribute to collective ecosystem protection complementing the full range of other protection and stewardship mechanisms in place in a landscape. NWAs and MBSs complement other federal contributions such as National Parks, Prairie Farm Rehabilitation Administration lands, National Capital Commission properties, and other federal properties that contribute to biodiversity conservation. Equally so, federal, provincial, territorial, and non-governmental habitat, parks, and stewardship initiatives contribute to this collective delivery of ecological integrity of the landscape. The Habitat Stewardship Program, NAWMP, and the Ecological

Gifts Program are all federally funded examples of delivery of stewardship in the landscape, usually on private lands using voluntary incentive mechanisms. These are important elements as habitat conservation moves from conservation of individual species to whole-ecosystem management.

Any national network plan must be supported by data and information. Without these, potential areas can not be identified and assessed for inclusion in the network, managing areas becomes guesswork rather than based in science, and the network plan becomes unable to assess whether establishment and management activities are meeting their intended purpose. Another key element is monitoring, allowing evaluation of changes in ecological character and the effect of management and policy regimes on the landscape and network of protected areas.

The central challenge in reinvesting in Canada's NWA and MBS network is to propose a reasonable, measurable basis upon which to anchor the network. It may be based on one or a combination of physical, biological, ecological, and socioeconomic criteria.

BACKGROUND OF THE NWA AND MBS PROGRAMS

The NWA network

Most Canadians do not realize that CWS is one of the largest custodians of conservation lands in Canada (after the Parks Canada Agency). When the public hears about "protected areas," it usually hears only about the National Parks Program, a view enhanced by frequent report cards by the World Wildlife Fund about progress on protected areas. These report cards have generally ignored all wildlife and stewardship initiatives. However, this lack of public profile does not diminish the responsibility that CWS now carries.

In CWS's broad range of activities, only its 51 NWAs offer rigorous protection of habitat. Since its beginnings in 1966, the NWA program alone has protected almost 529 000 ha of habitat. Included in this figure are over 170 000 ha of protected marine ecosystems, further contributing to CWS's stature as a major player in protecting both terrestrial and marine ecosystems across Canada. Background statistics on the NWA program are outlined in Appendix B in relation to other protected areas programs in Canada.

The history of the NWA program is described in detail in Appendix C, based on a report by Smith (2000). It must be noted that the funds and staff time dedicated to NWA activities overlap with MBS and MWA responsibilities and are not further separated in this paper. Smith (2000) documents the aggressive rise of the NWA program between 1966 and 1976, during which time 18 700 ha of wetland were acquired at a cost of $8.7 million. Expenditure projections for NWA habitat acquisition and management of a further $43 million up to 1996 had been envisaged, but most of this never materialized. Since the mid-1980s, the program has been cut severely and its acquisition budget has been almost nil. However, the area of the NWA network has grown in a minor way through infilling and land transfers. As well, a number of properties in MBS status have been incorporated in NWA sites.

The NWA network remains an important contributor to many national habitat-related policies and strategies. Backed by the *Canada Wildlife Act*, NWAs have a solid legislative basis. The network contributes to the delivery of many government environmental goals and policies, including Canada's 12% protected areas objective, species at risk and biodiversity objectives, migratory bird protection, and federal policies on water and wetlands. Some of these programs are outlined in Table 1.

Table 1. Contribution of NWAs and MBSs to the delivery of federal programs and policies

CWS's Habitat Conservation Program: "*...to conserve, protect and enhance the habitat of Canadian wildlife by establishing protected areas for nationally and internationally significant wildlife habitats and co-operating with others to sustain wildlife habitats across the Canadian landscapes and seascapes*" (all NWAs contribute)
Canadian Biodiversity Strategy (1995): "*...conserve ecosystems and critical habitats to support populations of wild flora and fauna and other wild organisms*" (Strategic Direction 1.2) (all NWAs contribute)
Federal Policy on Wetland Conservation (1991): "*...promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future*" (most NWAs contribute; over 40% of NWA land area is wetland)
Federal Water Policy: NWAs and MBSs contribute significantly to water quality conservation nationwide
A Wildlife Policy for Canada (1989): NWAs and MBSs are the largest component of all lands and waters set aside to protect wildlife and their habitats by any single agency nationally
Ramsar Convention on Wetlands of International Importance: "*...[designating] wetlands of international significance*" (17 sites (NWAs and MBSs) are designated as Ramsar sites)
Biosphere Reserve Network: Of Canada's nine Biosphere Reserves, four include some lands designated as an NWA or MBS
Canada Oceans Act: "*The conservation and protection of endangered or threatened marine species*"; "*The conservation and protection of unique habitats*"; "*The conservation and protection of marine areas of high biodiversity or biological productivity*" (Article 35(1) — Marine Protected Areas) (about 170 000 ha of ocean waters are protected as NWAs)
Proposed *Species At Risk Act – Canada Wildlife Act* amendments would allow NWAs to be created on lands not owned by Environment Canada (NWA network could be significantly increased)

The NWA network complements the wetland conservation programs falling under various joint venture programs, such as NAWMP. NWAs are an important component in the matrix of Canadian protected areas with other federal, provincial, territorial, and non-governmental wildlife protection areas and park programs. A more detailed assessment of these links can be found in Appendix C.

While many protected areas contribute to numerous social and environmental objectives, NWAs have the protection of wildlife habitat as their central objective of management. With the primary emphasis of NWAs being placed on migratory species — in particular, species at risk or species under continent-wide population pressure — and their habitat, the managers of NWAs look outward into the larger landscape/ecosystem and across international borders to achieve effective management of these sites.

The MBS network

There are currently 92 federal MBSs in Canada, encompassing over 11 million hectares. Some sites in the Arctic are huge, like the Queen Maud Gulf MBS (6.3 million hectares), while others in southern Canada can be as small as a 1-ha seabird nesting island in Ontario. MBSs are established under the authority of the 1917 *Migratory Birds Convention Act* to protect breeding and migrant avifauna against hunting and physical disturbance. The first official MBS was established in 1919 at Last Mountain Lake in Saskatchewan. This was followed by dozens more MBSs in successive decades when hunting, egging, and other forms of disturbance were considered the main threats. By the 1970s, it was recognized that alteration of habitat was the biggest threat to migratory birds, but MBS designation did

not mean habitat protection. There was no provision for habitat protection under the Sanctuary Regulations until a 1974 amendment inserted habitat into section 10(1):

> *No person shall, in a migratory bird sanctuary, carry on any activity that is harmful to migratory birds or the eggs, nests or habitat of migratory birds, except under authority of a permit.*

The permit referred to in section 10(1) can be issued by the Minister if the MBS is located on federally owned lands or by the chief game officer of a province if the MBS is on provincial Crown land. The permit requirement has been most useful in regulating oil and gas and mining exploration in the huge MBSs located in the Arctic. It has not been used to any significant extent in southern Canada, but it still is a useful regulatory tool in sanctuaries established on Crown land. The provision does not apply to MBSs that have been established on private lands.

Designation of a site as an MBS serves to highlight the significance of that habitat to migratory birds and therefore provides a measure of habitat protection — that being public recognition of importance. Several sites originally established as MBSs have since been purchased by CWS and are scheduled to become NWAs in order to effectively protect and manage critical habitat. As well, several MBS sites have been "delisted" due to biological reviews indicating that they no longer support significant numbers of migratory birds.

Like NWAs, the MBS network contributes to the delivery of many government environmental goals and policies (see Table 1 above). Background statistics on the MBS program are outlined in Appendix B in relation to other protected areas programs in Canada.

CHALLENGES FACING THE NWA–MBS NETWORK

The current situation

It is clear to those who manage NWAs and MBSs, and increasingly to the general public, that NWAs and MBSs are not living up the promise outlined in the *Canada Wildlife Act* and the *Migratory Birds Convention Act*. Table 2 lists the major challenges facing the current NWA–MBS network. The current situation can be summarized as follows:

- little action to acquire new areas;
- lack of resources for adequate site management, including signage;
- increased social and development threats both within and outside the NWAs;
- degradation of site infrastructure;
- declining ecological integrity;
- inadequate scientific base of research, inventory, and monitoring;
- increased threats to the safety of public visitors;
- reactive management regimes;
- inadequate enforcement; and
- declining partner and public support.

Table 2: Challenges facing the NWA and MBS network

Ecological/scientific challenges: • The ecological integrity of NWAs and MBSs is declining • Thirty-seven of 51 (74%) NWAs and 39 of 92 (42%) MBSs are less than 1000 ha, a size often considered the minimum to maintain ecological integrity • Current biodiversity values (values for setting aside areas) are deteriorating, yet many bring in revenue supporting core maintenance • Inadequate knowledge of biological resources on site regarding contribution to proposed species at risk legislation • Insufficient inventory, research, and monitoring • Inadequate restoration work
Land management challenges: • Treasury Board guidelines for cost recovery, land transfers, etc. are obstacles to new acquisitions • The *Canada Wildlife Act* does not allow NWAs on lands not under effective federal government control (e.g., through ownership or lease) • Public Works and Government Services Canada review of land grants in lieu of taxes (internal federal land transfers) not completed • Exorbitant fees for government services do not encourage/promote coordinated land management • Little/no infilling, selling/trading bits • Conservation easements poorly managed • Financial resources; habitat budget needs not clearly identified in Environment Canada budget and business plans
General management challenges: • CWS may not have broad enough expertise (e.g., in mammals and plants) for comprehensive management of NWAs or MBSs • Capital assets (e.g., dikes, pumps, trails, etc.) have deteriorated • Outdated management plans • Inadequate enforcement, while enforcement problems have increased • Lack of coordinated national management standards/program • Integration of NWAs and MBSs with other conservation and stewardship efforts is not occurring • Ineffective communication with general public • Volunteers are declining across the country • Increased visitation has increased administrative pressures • Management is generally reactive • Minimal interpretation activities (in three NWAs only)
Social challenges: • Public safety is at risk due to deteriorating buildings and structures such as bridges • Decline of public support for the habitat initiatives • The reputation of CWS as an effective manager of protected areas has diminished • Partnerships are in jeopardy and being lost in some areas • Eco-tourism pressures • Some non-government research links are being lost

Table 2: Challenges facing the NWA and MBS network (*cont'd*)

Legal/policy challenges:

- Location of land title documents not centralized
- Liability of Crown has increased with inactivity on sites
- Legal obligations of CWS to landowners not being met
- Environmental impact assessment/*Migratory Birds Convention Act* obligations not being met
- Actions supporting the Canadian Biodiversity Strategy and World Conservation Strategy in jeopardy
- Statement of Commitment to Protected Areas (1992) (Parks, Wildlife and Environment Ministers) not being met
- Contributions to Conservation of Arctic Flora and Fauna (CAFF) accord (1991) not fully met
- Wildlife Policy for Canada not being met
- Federal, provincial/territorial, and municipal Environment Canada obligations outlined in management plans not being met
- Gazetting of lands not being done rapidly due to lack of funds

Financial and human resources

Throughout the 1970s, much of the focus of the CWS national habitat program was on site securement for NWAs and MBSs. Management development commenced at many sites by the mid-1970s, and, with the passage of the Wildlife Area Regulations in 1977, operational and administrative activities expanded. However, resources associated with the program have always been very limited.

An early review of the CWS Habitat Conservation Program estimated that in fiscal year (F/Y) 1976–1977, 27 person-years (full-time equivalents, or FTEs) and $305,000 in operating and maintenance (O&M) funds (Table 3) were required to administer the program (Loughrey 1976). Projections to 1985–1986 indicated a need to increase to 100 FTEs, $900,000 O&M, and $600,000 development. Those predictions did not materialize in subsequent years, and a national acquisition budget was cut back and eventually fully curtailed by 1984. Management of the sites became the primary focus. Some limited expansion of sites in southern Canada was accomplished via interdepartmental transfers and acquisitions by the newly created Wildlife Habitat Canada.

Table 3. Comparison of resource allocations to the NWA–MBS program, 1976–2001

Resources	FTEs	O&M ($000)	Capital ($000)
1976–1977[1]	27.0	305	1,200
1990–1991[2]	(est.) 16.0	387	0
2000–2001[3]	12.25	432	158

[1] Loughrey (1976).

[2] Lambert and Sweet (1993) reported $777,000 for salaries and O&M in 1990–1991. In that same report, salaries for 1992 were estimated to be $390,000; therefore, to approximate the amount of O&M only in 1990–1991, the salary figure ($390,000) was subtracted from $777,000.

[3] Information from CWS headquarters and regional habitat conservation units, March 2000 and March 2001.

Site management and development at many NWAs often involved partnership arrangements with NGOs, such as Ducks Unlimited Canada and many other conservation organizations and groups. Such partnership arrangements saw several million dollars' worth of site development and restoration work along with infrastructure improvements, including nature trails and interpretation facilities, at NWAs.

In June 1991, the Executive Committee of the Conservation and Protection Service of Environment Canada accepted a recommendation to "undertake a study of National Wildlife Areas in order to determine more accurately their funding requirements for facilities operation, maintenance and recapitalization" (Lambert and Sweet 1993). That study was undertaken by Public Works Canada and was completed in April 1992. Lambert and Sweet (1993) reported that in 1990–1991, the total salaries and O&M expenditures on NWAs amounted to $777,000. The report projected a need for F/Y 1992–1993 at $1.2 million, or approximately 150% of the expenditures for 1991–1992. Lambert and Sweet's (1993) summary comments were explicit: "The net O&M requirements, obtained by subtraction of the salaries from the total O&M requirements, amount to $800,000 for 1992–1993. This large amount indicates that O&M has been underfunded."

The 1992 Public Works Canada study also provided projections for the next five years, which included a recapitalization of existing facilities and new construction. Lambert and Sweet (1993) suggested that a total of $3.5 million was required and that "the large recapitalization funding required indicates that maintenance of the assets has been somewhat neglected. Adequate funding is required in order to bring the assets to a condition of good repair."

Unfortunately, the 1991–1992 study did not result in any new infusion of funds into the NWA program. However, the report did help CWS regions justify a minor shifting of resources to accommodate much-needed facilities repair.

The situation up to 2002 got considerably worse. Instead of the $800,000 annual O&M amount recommended in 1992–1993, the F/Y 2000–2001 reported annual O&M was $430,000, plus human resources of about 12.25 FTEs (Tables 3 and 4). Those resources are well below the levels reported by Loughrey (1976) that were assigned to the program 27 years ago. The ongoing A-Base resources allocated to the NWA and MBS network are believed to be inadequate to ensure program integrity, maintain NWA–MBS site infrastructure, and manage the sites. A very high percentage of current resources goes to managing only two of the large NWA sites in southern Canada — Last Mountain Lake NWA in Saskatchewan and Cap Tourmente NWA in Quebec.

Table 4. Estimated financial and human resourcing of the NWA, MBS, and MWA program (based on survey undertaken by CWS Habitat Conservation Division, Ottawa, March 2000 and March 2001)[1]

	Existing resources, F/Y 2000–2001		
Environment Canada region	FTEs	O&M ($000)	Capital ($000)
Pacific & Yukon	1.00	55	15.0
Prairie & Northern	2.50	85	92.0
Ontario	3.50	83	25.0
Quebec	3.00	162	18.5
Atlantic	1.75	37	7.5
Headquarters	0.50	10	–
2000–2001 (total)	**12.25**	**432**	**158**

[1] These figures may be slightly higher when departmental corporate services are factored in, but generally are indicative of the operational on-the-ground capacity of CWS with regard to NWA–MBS management today.

The NWA and MBS program is seen as a strongly mandated program that, on paper, contributes to numerous core CWS, federal government, and national conservation objectives, yet it is certainly

underachieving in the delivery of its mission. The implications of this situation are that, except for a few high-profile sites (such as Cap Tourmente, Last Mountain Lake, and Alaksen NWAs), the NWA and MBS program is not living up to its legislated mandate, and CWS has a poor profile within the spectrum of Canadian protected areas.

Management responsibilities

The existing network of 51 NWAs and 92 MBSs is viewed as an essential element of the federal contribution to conserving ecological integrity and protecting Canadian landscapes. This may not always have been the case. An internal program review was undertaken in 1995 and examined a proposition that some of these federally designated areas or management responsibilities could be divested to provincial, territorial, and non-government agencies in the spirit of intergovernmental "harmonization." It was suggested that, if willing partners could be identified, ownership or management of some NWAs and MBSs might be transferred. However, the review concluded that the majority of the sites should not be considered for either action.

It was noted that some of the 101 bird sanctuaries on this list in 1995 were in the process of being delisted (several, in fact, were, and a few have been added, so the total is now 92 MBSs). These delistings reflect the ongoing commitment by Environment Canada and its partner agencies for review of the biological basis for establishing bird sanctuaries. As populations change, the need for certain sites has been extinguished. The need for a dynamic sanctuary system was envisaged in the original MBS regulations with inclusion of a process for delisting sanctuaries if deemed ecologically sensible. Since 1995, much has changed, in particular the public's general understanding of the ecological value and national importance of this wildlife network. Environment Canada has not supported any suggestions for transfer of NWA or MBS lands or management responsibilities now in the federal domain to other governments or non-government agencies.

THE OPPORTUNITY

The NWA program has, for 35 years, been almost exclusively built around the protection of habitat for migratory species, principally waterfowl. Since the inception of the NWA program, the issues associated with conservation and protected areas have evolved to become more inclusive and holistic. MBSs have been created across the nation for over 80 years. Since Canada's signing of the Convention on Biological Diversity in 1992, conservation and sustainable use of all species and ecosystems have become important. The focus of conservation has grown to include recovery and protection of species at risk and their habitats. This has increased in prominence with the development of the *Species At Risk Act*. Since the passing of the *Canada Oceans Act* in 1996, there has been an elevated interest in conserving marine ecosystems. Furthermore, ecosystem management and stewardship are poised to become important management regimes.

Today, at the beginning of the 21st century, there is a strategic opportunity for the NWA and MBS programs to be reenergized by repositioning the network's role within the mosaic of conservation issues and activities. The fundamental objectives of the program, as initially outlined in the *Canada Wildlife Act*, remain sound. The criteria for NWA establishment are consistent with current broader conservation thinking. What is required is a renewed commitment to the initial vision of an NWA network in association with the Department's commitments to MBS and MWA initiatives. If the NWA and MBS network is to survive, creative ways must be found for the program to operationally contribute to these major initiatives.

THE PROPOSED VISION

A proposed vision of an NWA, MBS, and MWA network is to "maintain a national network of wildlife areas dedicated to the conservation and protection of the habitat important to the survival of nationally and internationally important migratory species and species at risk in Canada."

The network would achieve this vision through the following means:
1. establishment of procedures and priorities based on all existing establishment criteria;
2. management that is proactive and increasingly focused outward to whole-landscape conservation;
3. science that is relevant and applied to management objectives;
4. data collection and information products that are standardized and useful;
5. communication strategies that raise the profile of both the sites and the network;
6. partnerships that enhance the site and network goals; and
7. resource levels that are appropriate to the NWA , MBS, and MWA network vision.

Future of the NWA–MBS–MWA network

The NWA, MBS, and MWA network has the ability to support numerous current CWS and federal initiatives and should set a course in that direction. NWAs can be a key cornerstone of the Habitat Stewardship Program under the new *Species At Risk Act*. One option, of course, is to do nothing or indeed withdraw from managing these areas altogether. More realistically, a reinvestment approach could be developed over the next five years to create a fully robust and comprehensive NWA–MBS–MWA network program. It is proposed to revitalize Canada's NWA–MBS network over the next five years (Table 5).

Table 5. Highlights of the NWA–MBS–MWA network

Objective	To improve the capacity of NWAs, MBSs, and MWAs to proactively manage for migratory species and species at risk habitat protection
Policy/program links	*Species At Risk Act*, *Canada Oceans Act*
Establishment	Establishment criteria extended to include species at risk Aggressive infilling of current NWAs undertaken (exchanges, Ecogifts, memoranda of understanding [MOUs], etc.) New areas actively sought to fill voids in network Acquisition fund established Associated upland habitats added where feasible Systematic prioritization and acquisition of new NWAs Critically review and rationalize network against "no net loss" policy Identify and convert selected MBSs to NWAs Boundaries of NWAs rationalized to reflect ecosystem/habitat needs

Table 5. Highlights of the NWA–MBS–MWA network (*cont'd*)

Management	NWA ecosystem management — ecological integrity regime initiated and implemented Restoration of degraded sites supporting species at risk Non-gazetted lands actively managed NWA enforcement officers trained and deployed Develop strategic plan for MWAs
Science/research	Selected monitoring of key species and habitats Comprehensive inventory and assessments of stressors Regional wildlife corridor analyses undertaken Inventories of marine components begun Long-term science programs designed with universities Key databases developed and shared with partners
Outreach/ partnerships	Exchanges with other government departments (OGDs) and agreement with owners of neighbouring properties Minor acquisitions negotiated with landowners Links with Recovery of Nationally Endangered Wildlife (RENEW) and other species recovery efforts Expanded influence with sister programs (e.g., provide legal services for MBSs) NWA staff are active players in local stewardship initiatives NWA management links with other protected sites in region
Communication	Highly developed outreach program with local organizations, schools, etc. Semi-annual newsletters on regional NWA activities National public relations promoting goals and accomplishments of network
Expected results	Focus of NWAs broadened to include other CWS interests (species at risk) Contribution to *Species At Risk Act* and Marine Protected Area (MPA) programs Broader basis of expertise of NWA staff Strengthened regional partnerships Visible leadership and influence in regional ecosystem management

This would see the operation of the NWA–MBS program consolidated to meet existing obligations and lay the groundwork for a broader-based program. What has already been acquired in the network would be maintained through sound management, while all NWAs and some MBSs that have management plans would be updated to reflect the renewed NWA–MBS network vision. MBSs that are under pressure from human interference and other selected sites would be considered for development of MBS management plans. The initiative would include developing national management standards and conducting baseline species and habitat inventories. A national NWA–MBS and MWA Committee would be initiated to coordinate the details of implementation of the network plan. This would include developing ways and means to obtain input from a broad base of stakeholders and developing and maintaining a national NWA–MBS–MWA candidate sites list (sites based on a broad suite of national conservation criteria) for future acquisitions. A communication plan would be included to raise the profile of the NWA–MBS–MWA network.

It is known that NWAs and MBSs contain the habitats of many species at risk (see Appendices B and C). Further reinvestment in the network would represent a step to position the NWA–MBS–MWA network as a key mechanism to deliver conservation of critical biodiversity. This requires the management of existing areas for the protection of migratory species and species at risk and would become a cornerstone of NWA and MBS operations. An acquisition fund would need to be established

to purchase priority sites and extend the NWA network, particularly for species at risk. Annual expansion of the network would be achieved through direct purchases, internal government land transfers, and other creative arrangements with landowners. Planning for MWAs would also be phased in, beginning with jointly funded inventories and assessments of key marine habitats. Ecosystem management would become the operational management regime for all NWAs, MBSs, and MWAs.

Projected resource requirements

Past resource allocations to NWA–MBS establishment and management are compared with the reinvestment concept for the future outlined above in Table 6. CWS should look at reestablishing core funding to this program to bring the management and administration efforts at these key protected sites at least up to minimum acceptable levels. A reestablishment of acquisition capital is needed in order to complete infilling and to consider new sites. The establishment of MWAs will require additional resource considerations if CWS is to seriously act on this new capability within the *Canada Wildlife Act* and the *Migratory Birds Convention Act*.

Table 6. Projected annual resource requirements for reinvestment concept

Resources	FTEs	O&M ($000)	Capital ($000)
Current			
2000–2001[1]	12.25	432	158
Investment in the future			
Enhanced NWA–MBS–MWA network[1]	60.0	20,000	2,500

[1] Proposals developed by CWS headquarters and regional habitat conservation units, March 2000 and March 2001.

Implementation process

Developing national and regional priorities, distributing resources, and assessing properties and projects are major planning elements. Information gathering and planning on a regional scale will require facilitation across government agencies, industry groups, and the wider community.

Coordination

In order to oversee the development of a renewed network, a national NWA–MWA–MBS coordination team will need to be created. The coordination team will need to undertake the roles that are listed and elaborated below:

- establish general network-wide planning;
- recommend resource allocations;
- develop standards for inventory and monitoring;
- develop a nationally consistent process for identifying and acquiring potential areas;
- develop an action plan for MWAs; and
- develop a network-wide communication plan and products, including performance measures.

Support and leadership

The NWA–MBS–MWA coordination team should help cultivate departmental support and leadership for this initiative and provide products that support the program. Major announcements of the NWA–MBS–MWA vision should be built into speeches of the Minister of the Environment at important events. The message that the renewed NWA–MBS network can contribute to the proposed *Species At Risk Act*, the federal response to the Canadian Biodiversity Strategy, and the *Canada Oceans Act* should be communicated at every opportunity.

Acquisition priorities

The planned network goes beyond reactive opportunism to a proactive stance. Priorities must be developed for both establishment and management of existing and new sites. Establishment criteria are already in place, but ways and means must be put in place for evaluating more sites on a common basis or for targeting specific sites for purchase. In addition, determining priorities will project a sense of urgency. A team of specialists should undertake the process of developing national priorities for establishment. Priorities can be extended from earlier work such as Novakowski et al. (1992), which focused on other sites of value for protecting species at risk and unique habitats, including wetlands. Acquisition priorities could be based on the criteria suggested in Table 7.

Table 7. Potential criteria to assess acquisition priorities

Ecological criteria
▪ Representation of specific habitats or ecosystems
▪ Uniqueness of sites
▪ Biological, habitat, or ecosystem importance
▪ Ecological integrity
▪ *Species At Risk Act* critical habitat
▪ Size, spatial extent and arrangement, connectivity

Table 7. Potential criteria to assess acquisition priorities (*cont'd*)

Scientific criteria ▪ Internal and external threats (e.g., land use pressures, pollution) ▪ Research values ▪ Protection value (e.g., species at risk versus biodiversity)
Social/political criteria ▪ Potential community/environmental NGO involvement ▪ Aboriginal concerns and traditional use issues ▪ Opportunity (e.g., landowner is ready to sell) ▪ Costs of establishment and management ▪ Political urgency ▪ Promotional value ▪ Interpretation potential ▪ Relationship to neighbouring protected areas ▪ Relationship to other CWS wildlife priorities ▪ Contribution to regional or national priorities ▪ Demonstration and tourism potential

The NWA–MBS–MWA network should be examined periodically to identify non-critical areas and determine if they should be (a) retained by CWS as an NWA, MBS, or MWA; (b) transferred to another management authority where wildlife conservation goals can be achieved; or (c) disposed of. For potentially surplus areas, some options include the following:

- Negotiate land exchange arrangements with provinces, Parks Canada, or OGDs to eliminate surplus NWAs and MBSs in return for required lands.
- Consider restrictive covenants.
- Turn lands over to Treasury Board (Public Works and Government Services Canada) for disposition.
- For non-gazetted areas, if ownership rests with an OGD and the area is surplus to its needs, explore use of the *Species At Risk Act* provisions, consider transfer to CWS, or devise MOUs or other methods to ensure securement or application of NWA regulations (see below).
- Where ownership rests with other agencies besides the federal government, explore options for securement through purchase or trade.
- Examine sites that are not key/critical areas, but for which wildlife conservation is the best or most sustainable use, and explore the possibility of transfer to Environment Canada (if federally owned and cost minimal) or develop MOUs to maintain areas as if owned by Environment Canada.

The text of the *Species At Risk Act* indicates that there will be increased opportunity to create new NWAs. Under the Act proclaimed in June 2003, the Minister of Environment may "enter into an agreement with any government in Canada, organization or person to provide for the conservation of a species-at-risk." Conservation measures include "protecting the species' habitat, including critical habitat." This applies to both species at risk (Article 11) and species not at risk (Article 12). Furthermore, the *Species At Risk Act* provides for regulations on federal lands and agreements without transfer of lands to Environment Canada.

> Article 59. (1) *The Governor in Council may, on the recommendation of the competent minister after consultation with every other competent minister, make regulations to protect critical habitat on federal lands.*

The application of this provision to the establishment of NWAs would be an effective mechanism to create additional NWAs on properties owned by other federal departments.

National standards

The NWA–MBS–MWA coordination team will need to address many issues on a network basis. This will require the development and use of standards. A coordinated network will have network-wide standards in a number of areas, including:

- inventory descriptions and monitoring;
- state of the wildlife areas report on a regular timetable (e.g., every 10 years);
- research results;
- permitted activities;
- management reporting statistics (staffing, resources, activities);
- definition and application of an ecosystem approach to management philosophy;
- performance measures and reporting;
- enforcement codes and monitoring; and
- basic functions of management advisory boards.

Partnerships

The support of key agencies should be sought. For example, if the NWA–MBS–MWA network is to be expanded to include species at risk initiatives, major agencies and individuals such as those represented on the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), the Habitat Stewardship Program, and the RENEW program should be sought. To help improve the ecological integrity of NWAs, MBSs, and MWAs, extending protection beyond NWA–MBS–MWA boundaries, and to secure areas unavailable for acquisition, partnering with landowners and promotion of land stewardship will be important.

Science

A fully engaged NWA–MBS–MWA network would have a strong interdisciplinary science program that includes inventories and monitoring. Partnership with the academic, NGO, and volunteer communities must be nurtured and sustained. Network-wide standards for inventories should be implemented so that research results and data are collected in consistent ways.

Recommendations

1. Establish a National NWA–MBS–MWA Committee to coordinate further development of an NWA–MWA–MBS network plan and gain the necessary approvals for the program.
2. Establish a vision statement and review the objectives of such an NWA–MBS–MWA network with regard to the ecological integrity of Canadian landscapes and other federal mechanisms for protected areas, such as parks, federal land management, and habitat stewardship.
3. Establish a state of the network analysis to evaluate the overall ecological integrity of the NWA–MBS network and its individual sites.

4. Incorporate the vision for an NWA–MBS–MWA network in interdepartmental discussions on the federal role in protected areas.
5. Develop and distribute communication products outlining major aspects of the NWA–MBS–MWA network.
6. Develop an action plan for MWAs.

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APPENDIX A: CRITERIA FOR ESTABLISHING NATIONAL WILDLIFE AREAS, SELECTION OR CANCELLATION OF MIGRATORY BIRD SANCTUARIES, AND SELECTION OF MARINE AREAS OF INTEREST

Criteria for establishing National Wildlife Areas

Background

Prior to 1989, there was not a set of criteria established for candidate National Wildlife Areas (NWAs). This in part accounts for some of the differences between earlier NWAs and those created after criteria were established. In 1989, a headquarters–regional committee of the Canadian Wildlife Service (CWS) was struck to develop a set of biologically based criteria for selecting new NWAs. This document was distributed to the regions as "Criteria for Selecting Candidate National Wildlife Areas, February 1994." These criteria were proposed to ensure that an area is nationally significant habitat.

The criteria were established for three main purposes:

- to establish a minimum standard of national habitat importance, based on defensible biological values, in keeping with Canada's obligation under the Convention on Biological Diversity and A Wildlife Policy for Canada;
- to make decisions for the selection of new areas that are generally consistent across the country; and
- to communicate and demonstrate the uniqueness and national value of NWAs.

Scope of selection criteria

The criteria take into account:

- the authority of the *Canada Wildlife Act* to establish NWAs;
- the purposes of research, conservation, and interpretation for which NWAs may be established under the *Canada Wildlife Act*;
- national and international commitments of the federal government as pertain to habitat; and
- the broad definition for "wildlife" as agreed to by all jurisdictions in A Wildlife Policy for Canada.

In developing these CWS national criteria, it was recognized and agreed that regional applications may require regionally specific guidelines. It was further recognized and agreed that CWS regions may choose to elaborate on these national criteria to produce region-specific criteria. In either case, the national criteria formed the minimum standard for selection nationwide.

Criteria

An area is considered to meet the minimum requirements of an NWA if it meets at least one of the selection criteria set out below:

Migratory birds

1.(a) The area supports a population of a species or subspecies or a group of species that is concentrated, for any portion of the year. (b) Where data on populations are available, the area supports at least 1% of the Canadian population of a species or subspecies or a group of species, for any portion of the year. (c) The area possesses a high research potential for restoration or enhancement, such that migratory bird populations could be increased to meet national population targets.

Wild flora and fauna

2.(a) The area supports an appreciable assemblage of rare, vulnerable, threatened, or endangered species or subspecies of plants or animals, or an appreciable number of individuals of any one or more of these species or subspecies (e.g., COSEWIC list). (b) The area has special value for maintaining the genetic and ecological diversity of a region because of the quality and uniqueness of its flora and fauna.

Unique wildlife habitat

3. The area is a rare or unusual wildlife habitat of a specific type in a biogeographic region.

Assessing NWA feasibility

There are a number of circumstances that must be taken into consideration when assessing NWA feasibility, ranging from administrative considerations (e.g., land ownership, ministerial authority, resources to enforce regulations, if necessary) to biological considerations (e.g., meets all or part of the criteria for selection).

Guidelines for application of the criteria for selecting candidate NWAs

1(a). This criterion may apply where collection of population data is difficult due to the size of a species' geographic range. The criterion includes areas on which species or subspecies depend to complete any part of their life cycle, such as nesting, feeding, migration, and wintering areas. A group of species would be, for example, waterfowl.

1(b). In the Northwest Territories and Nunavut, CWS uses a 1% criterion for populations of a species or subspecies or group of species to determine national significance. As well, the Ramsar Convention uses a 1% criterion to determine internationally significant numbers of waterfowl. Areas covered are otherwise similar to criterion 1(a).

1(c). This criterion may apply to an area with high potential for wildlife research, which is one of the functions for which an NWA may be created. Research may be in support of restoration or enhancement of an area, either to restore degraded habitats or to enhance good habitats, for the benefit of wildlife. The goal would be to increase wildlife populations to meet national targets, such as those established under the North American Waterfowl Management Plan (NAWMP), the Canadian Landbird Conservation Strategy, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or Recovery of Nationally Endangered Wildlife (RENEW) programs, the North American Bird Conservation Initiative, and, on occasion, international targets.

2(a). An "appreciable assemblage" of species or subspecies would be a grouping that, in relative terms, is generally accepted as being sufficient to warrant conservation action. In general, what constitutes an "appreciable number of individuals" would be determined on a case-by-case basis, based on the specific circumstances of each species or subspecies or group of species. For a species that is concentrated in an area, an "appreciable number of individuals" of a population of a rare or endangered species might amount to 1% of the population.

2(b). Quality and uniqueness of flora and fauna could refer to an exceptional diversity of wildlife species, endemism, genetically distinct stock, etc.

3. Allows for habitats that always have been rare in a region, as well as habitats reduced to a remnant of their former extent. Examples include bog habitats in southern Ontario, the Garry Oak ecosystem on southern Vancouver Island, or the tallgrass prairie ecosystem.

Criteria for selection or cancellation of Migratory Bird Sanctuaries

The criteria for selection or cancellation of Migratory Bird Sanctuaries (MBSs) were approved by the CWS Executive Committee in December 1988.

Sanctuaries should be reviewed every five years to determine if they continue to meet the described criteria. An area will be considered suitable for the establishment or maintenance of an MBS if it meets one or more of the criteria that follow:

1. *It supports populations that are concentrated, for any part of the year, in order to meet one or several essential needs, and that are vulnerable to site-specific threats.* As a significant portion of the populations could be affected, threats may include exploration, development, etc. Such key habitat sites could include nesting colonies, moulting areas, wintering areas, or staging areas.
2. *It supports populations that occupy habitats of restricted geographical area and are vulnerable to human disturbance.* Areas that support threatened, endangered, or rare species are examples.
3. *It regularly supports at least 1% of a population of one species or subspecies.* In the Northwest Territories, Nunavut, and Yukon (the latter, north of the Arctic Circle), national population totals (when known) will be used as benchmarks. In the South and southern Yukon, provincial or regional populations will be considered. Regions should review the population status of the featured species every five years and provide appropriate recommendations to headquarters.
4. *The site figures prominently in the requirement for the management of regional populations of migratory birds and/or has high capability for educational or interpretive purposes.*

Criteria for selecting marine areas of interest to CWS

Background

The Marine Protected Areas Working Group (MPAWG) began its work in 1996, with the task of defining Environment Canada's role in conservation of marine habitats. This work is a continuation of that task and is a vital component recognized in the 1996 "Towards an Environment Canada Strategy for Coastal and Marine Protected Areas" and the 1999 "Marine Protected Areas: Opportunities and Options for the Canadian Wildlife Service — A Discussion Paper." Both documents identified the need for an inventory of key migratory bird marine habitats/sites that could qualify for designation as NWAs, MBSs, or Marine Wildlife Areas (MWAs) under federal regulation. While regulations currently are in place for NWAs and MBSs, this is not yet the case for MWAs.

MPAWG was directed by the CWS Executive Committee to develop a set of criteria that could be applied to the identification of marine habitats of significance to migratory birds and species at risk (as in the CWS Strategic Plan). Deliberations during 2000–2001 concluded that a two-step process may be the most suitable approach. The first set of guidelines, presented here, would be used to identify sites for a compendium of important marine habitat sites for migratory birds and species at risk within Canada's territorial sea (the 12-nautical-mile limit) and the Exclusive Economic Zone (200-nautical-mile limit) on its three oceans and the Great Lakes. These guidelines would allow for a consistent national approach to both terrestrial and marine ecosystems. A second set of criteria is proposed to rank the sites as to their relative significance and urgency for protection. These criteria, yet to be developed, would meet multiple objectives, such as the Important Bird Areas and Ramsar sites designations, as well as regional requirements for Marine Protected Area (MPA) planning and

designation under other processes (for instance, the Fisheries and Oceans Canada MPA process or resource planning processes).

It is recognized that special provisions may be required for regulation in the Exclusive Economic Zone (200-nautical-mile limit) in the marine environment in accordance with Section 477.1 of the Criminal Code.

Objectives

The development and application of these criteria will:

- contribute to national and international commitments of the federal government in relation to habitat and biodiversity conservation;
- inform the public and other interests of the value of these sites, with an emphasis on migratory birds and species at risk;
- act as a first step in the establishment of an individual protected area or a network of protected areas; and
- assist other agencies (government and non-government) in the cooperative establishment of MPAs.

Criteria for migratory birds and species at risk

1) The marine or terrestrial area supports at least 1% of the Canadian population of a species or subspecies of migratory birds or species at risk for any portion of the year where total populations are known.

2) The marine or terrestrial area supports an appreciable assemblage of species or subspecies of migratory birds or species at risk or an appreciable number of individuals of any one or more of these species or subspecies where total populations are not known or the assemblage represents a regionally significant area.

3) The marine or terrestrial area has been identified as critical habitat for a listed (COSEWIC) migratory bird or other species at risk population.

APPENDIX B: STATISTICS ON NATIONAL WILDLIFE AREAS, MIGRATORY BIRD SANCTUARIES, MARINE WILDLIFE AREAS, AND RELATED PROTECTED AREAS

Introduction

In order to undertake a network plan of National Wildlife Areas (NWAs), Migratory Bird Sanctuaries (MBSs), and Marine Wildlife Areas (MWAs), the extent and distribution of current properties should be known and documented. Environment Canada's protected areas supporting wildlife conservation must be placed in the broader context of other federal, provincial, and territorial efforts — from parks to wilderness areas — that, to varying degrees, contribute to wildlife protection.

Information on federal areas that protect wildlife is needed to allow the reporting of efforts. The federal government has legislation and policies that require data and information on the status of protected areas. An example is reporting on the response of federal agencies to the Canadian Biodiversity Strategy. The Geomatics Canada agency at Natural Resources Canada has produced a *Species at Risk Atlas* to document the status of stressors, conditions, and conservation of wildlife, including protected areas. This agency has launched an Internet version of the Canadian Conservation Areas Database (CCAD) on protected areas. Non-government groups, such as Wildlife Habitat Canada, require objective information on the status of wildlife habitat protection. Wildlife Habitat Canada has released a national report on *The Status of Wildlife Habitats in Canada* (Wildlife Habitat Canada 2001).

Sources and methods

The protected area analyses in this report are largely extracted from the CCAD, a national database of protected area holdings. The CCAD is the most objective and comprehensive database on protected areas in Canada. It should be noted, however, that the status of protected areas in Canada is changing rapidly, and it is difficult to capture data for all jurisdictions at one point in time. The quality of data is mostly complete and accurate for federal protected areas. Data on provincial and territorial protected areas are largely correct but, in some cases, may be a year or two out of date and require some minor corrections for selected attributes. Nevertheless, the statistics presented in this report represent the most reliable and complete statistics for the period when this report was prepared.

Another source of data for these analyses is EcoMAP, which is a national database of biological, physical, and socioeconomic measures of the condition of ecosystems, land uses, stressors, and land management responses, all compiled according to Canada's ecological framework. The EcoMAP database contributed associated data against which protected areas can be compared and future conservation priorities assessed.

General trends

Number of protected areas

The number of areas protected by governments in Canada is over 3900. Over 1400 are provincial and territorial parks of varying types. Over 400 properties are set aside explicitly for wildlife conservation. Many other sites, such as parks, protect wildlife to some degree as well. The federal government, through the Canadian Wildlife Service (CWS), currently manages 51 NWAs and 92 MBSs.

Area protected

Broadly speaking, there are nine types of areas protected by either provincial/territorial or federal governments. Four of these types are specifically designed to address wildlife concerns. Figure B1 shows the relative amount of protected area analyzed by ecoregion across Canada. Over 35% of the total area protected by government is devoted explicitly to wildlife conservation. The federal government, through CWS, manages about 14% of the protected space in Canada through its NWA and MBS properties.

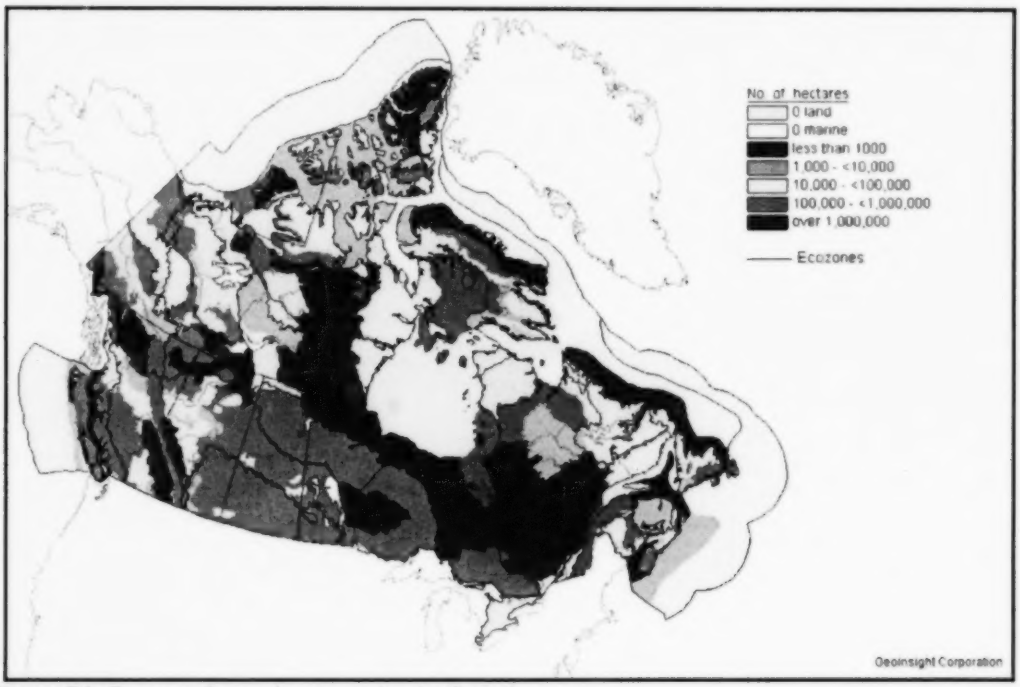

Figure B1: Protected area by ecoregion in Canada

Growth in the establishment of protected areas

The number of protected areas in Canada has been steadily increasing in the 20th century. In the 1970–2000 period, national and provincial parks experienced the greatest acceleration in area protected. Areas set aside for wildlife protection grew less rapidly in this period. The area represented by provincial and territorial wildlife areas has grown, while wildlife areas managed by CWS have not grown significantly in recent decades.

Among CWS properties, the NWAs grew most rapidly during the 1975–1985 period and have since levelled off. The status of the current NWA network in Canada is summarized in Table B1.

Table B1: Current National Wildlife Area network

Name	Province/territory	Year established	Area (ha)
Alaksen NWA	British Columbia	1976	299.0
Columbia NWA	British Columbia	1978	1 001.0
Qualicum NWA	British Columbia	1977	82.0
Vaseux-Bighorn NWA	British Columbia	1979	792.0
Widgeon Valley NWA	British Columbia	1978	125.0
Meanook NWA	Alberta	1979	214.0
Spiers Lake NWA	Alberta	1980	64.0
Blue Quills NWA	Alberta	1968	98.0
CFB Suffield NWA	Alberta	2003	45 800.0
Bradwell NWA	Saskatchewan	1968	123.0
Last Mountain Lake NWA	Saskatchewan	1994	15 602.0
Prairie NWA	Saskatchewan	1997	2 949.0
Raven Island NWA	Saskatchewan	1982	94.0
St. Denis NWA	Saskatchewan	1967	361.0
Stalwart NWA	Saskatchewan	1969	1 460.0
Tway NWA	Saskatchewan	1871	96.0
Webb NWA	Saskatchewan	1980	427.0
Pope NWA	Manitoba	1978	31.0
Rockwood NWA	Manitoba	1981	32.0
Big Creek NWA	Ontario	1978	773.0
Eleanor Island NWA	Ontario	1977	0.6
Long Point NWA	Ontario	1980	3 250.0
Mississippi Lake NWA	Ontario	1978	235.0
Mohawk Island NWA	Ontario	1976	2.0
Prince Edward Point NWA	Ontario	1980	246.0
Scotch Bonnet Island NWA	Ontario	1979	0.8
St. Clair NWA	Ontario	1978	289.0
Wellers Bay NWA	Ontario	1978	40.0
Wye Marsh NWA	Ontario	1978	47.0
Baie de L'Isle-Verte NWA	Quebec	1980	450.0
Cap Tourmente NWA	Quebec	1978	2 230.0
Iles de Contrecoeur NWA	Quebec	1981	222.0
Iles de la Paix NWA	Quebec	1977	121.0
Iles de L'Estuaire NWA	Quebec	1978	72.0
Lac Saint-François NWA	Quebec	1978	1 347.0
Pointe de l'Est NWA	Quebec	1978	684.0
Pointe-au-Père NWA	Quebec	1986	20.0
Shepody NWA	New Brunswick	1980	979.0
Cape Jourimain NWA	New Brunswick	1980	589.0
Portage Island NWA	New Brunswick	1979	439.0
Portobello Creek NWA	New Brunswick	1995	1 990.0
Tintamarre NWA	New Brunswick	1977	1 990.0
Boot Island NWA	Nova Scotia	1979	144.0
Chignecto NWA	Nova Scotia	1982	409.6
John Lusby NWA	Nova Scotia	1978	1 020.0

Table B1: Current National Wildlife Area network (*cont'd*)

Name	Province/territory	Year established	Area (ha)
Sand Pond NWA	Nova Scotia	1977	532.0
Sea Wolf Island NWA	Nova Scotia	1982	40.5
Wallace Bay NWA	Nova Scotia	1980	583.0
Polar Bear Pass NWA	Nunavut	1985	262 400.0
Nirjutqavvik (Coburg Island) NWA	Nunavut	1995	178 000.0
Nisutlin River Delta NWA	Yukon	1995	5 275.0

Size of protected areas

One measure of the integrity of protected areas is size. It is generally believed that larger-size areas are more resistant to outside pressures around the margins. Activities such as agriculture and forestry are common land use pressures that can isolate protected areas and encourage species and habitat changes, especially at the margins. On the other hand, small areas are more prone to become islands in a sea of protection. They have little interior habitat and are more likely to be influenced by adjacent land use practices. An area larger than 1000 ha is generally used as a rough dividing line between protected areas that have built-in integrity and those that do not. Smaller areas are more likely to require ecosystem-level management regimes that involve adjacent landowners.

Many of Canada's NWAs and MBSs are small in area. Of the 51 NWAs, 74% are less than 1000 ha, while 42% of the 92 MBSs are under this threshold.

Canada's protected areas network

IUCN designations

The World Conservation Union (IUCN 1994) has established six categories for protected areas that can be applied globally (Table B2). The categories are for protected areas managed mainly for:

- science or wilderness protection;
- ecosystem protection and recreation;
- conservation of specific natural features;
- conservation through management intervention;
- landscape/seascape conservation and recreation; and
- sustainable use of natural ecosystems.

Table B2: IUCN protected areas categories

IUCN category		Management goals or practices
I a.	Nature reserve	Primarily for scientific research or ecological monitoring
I b.	Wilderness area	Preservation of natural conditions
II.	National park (or provincial/territorial equivalent)	Ecosystem protection and recreation
III.	Natural monument	Protection of specific outstanding natural features, provision of opportunities for research and education, and prevention of exploitation or occupation

Table B2: IUCN protected areas categories (*cont'd*)

IUCN category		Management goals or practices
IV.	Habitat/species management areas	Securement and maintenance of habitat conditions necessary to protect species and ecosystem features where these require human manipulation for optimum management
V.	Protected landscape or seascape	Conservation, education, recreation, and provision of natural products aimed at safeguarding the integrity of harmonious interactions of nature and culture

Environment Canada niche in Canada's protected areas network

Through its various programs, CWS is involved in the management of species and habitats. CWS occupies a distinct niche in the spectrum of Canadian protected areas. In addition to its role in directly protecting land and water through its NWA, MBS, and MWA programs, CWS provides national leadership to the Canadian Ramsar network as the national authority under the Ramsar Convention. Ramsar sites are wetlands of international significance, and 17 of Canada's 36 Ramsar sites overlap with MBS or NWA sites. CWS is also involved in other multi-stakeholder habitat protection programs such as the Western Hemisphere Shorebird Reserve Network (WHSRN) and the North American Waterfowl Management Program (NAWMP) (Table B3).

Table B3: Canada's protected areas networks

	IUCN categories[1]					
Canadian protected areas networks	I	II	III	IV	V	VI
A. Federal protected areas						
CWS wildlife and habitat protected area programs						
National Wildlife Areas	■			■		
Marine Wildlife Areas				■		
Migratory Bird Sanctuaries				■		
Ramsar[2] sites (Wetlands of International Importance)				■		
Western Hemisphere Shorebird Reserve Network[2] sites				■		
Eastern Habitat Joint Venture[2]				■		
North American Waterfowl Management Plan areas						■
Ecogift land donations	■					■
Other federal protected areas						
National Parks		■				
National Marine Conservation Areas		■				
National Heritage Rivers		■				■
Canadian Biosphere Reserves[2]		■				■
B. Provincial/territorial protected areas						
Wilderness Areas	■					
Ecological Reserves	■					
Provincial Parks		■			■	
Natural Monuments (e.g., archeological sites)			■			

Table B3: Canada's protected areas networks (*cont'd*)

	IUCN categories[1]					
Canadian protected areas networks	I	II	III	IV	V	VI
Wildlife Management Areas/Wildlife Protection Areas				■		
Recreational Sites					■	
Conservation Lands (e.g., Conservation Authority Areas)						■

[1] See explanation of IUCN (World Conservation Union) categories in Table B2.

[2] Sites under these programs are not necessarily protected by legislation or agreements. However, many sites, or parts of sites, do enjoy formal protection through other programs.

Protection of wildlife — a comparative perspective

All protected areas in Canada benefit wildlife and ecological integrity of the landscape to some degree. Environment Canada's NWAs and MBSs are set aside to specifically protect wildlife. In practice, there has been a bias to protect the habitat of migratory species, a distinct federal responsibility. Provinces and territories have established wildlife management areas and other wildlife protected areas. These have most often been devoted to protecting big game species. In addition, all jurisdictions have parks programs. Most provinces have ecological reserves and wilderness areas and many other designations. All of these help protect wildlife habitat. Figures B2 and B3 show the area protected through Environment Canada initiatives by ecoregion.

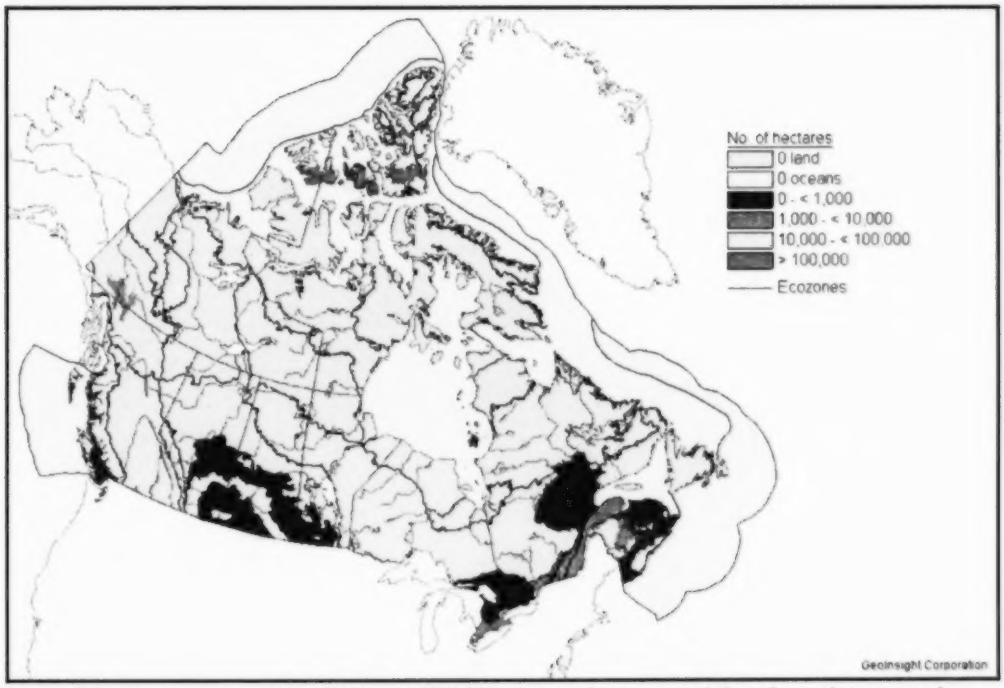

Figure B2: Area protected by National Wildlife Areas, by terrestrial and marine ecoregion

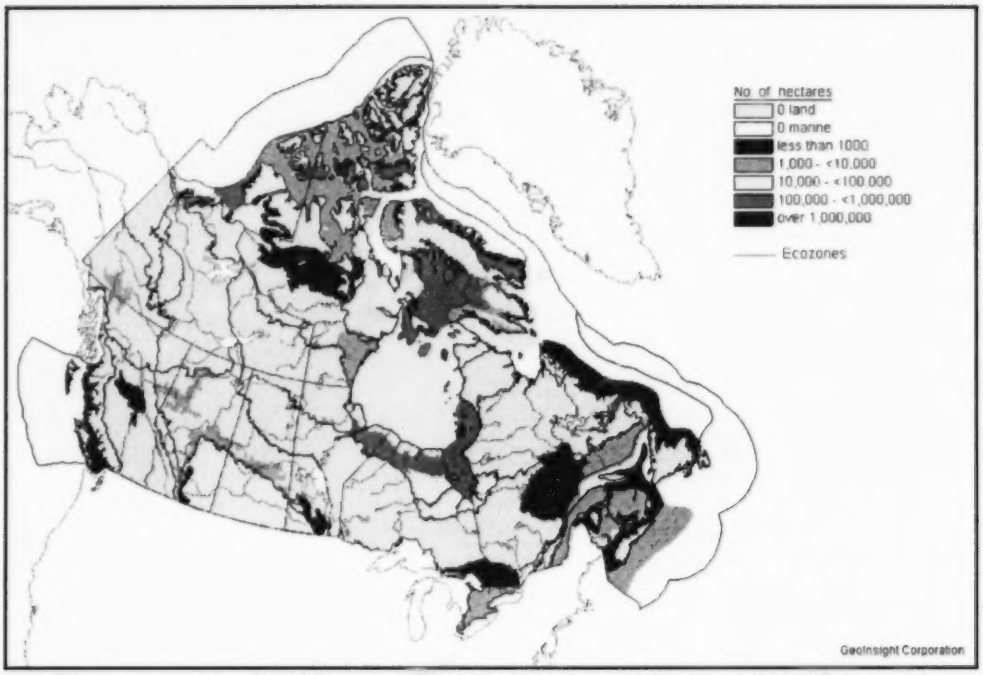

Figure B3: Area protected by Migratory Bird Sanctuaries and National Wildlife Areas, by terrestrial and marine ecoregion

Growth in marine ecosystem protection

Marine waters have made a significant contribution to Canada's protected areas network, currently accounting for about 3.1 million hectares. About 50% of this areas is found within CWS properties, primarily MBSs (1.4 million hectares). NWAs account for about 152 000 ha of marine protection. Other marine contributions include National Parks and National Marine Conservation Areas (492 190 ha) and provincial marine parks in British Columbia (42 890 ha). British Columbia also has many marine ecological reserves, but the amount of marine protection is uncertain, and therefore they are not included here. It is believed that most of the marine ecological reserves are islands.

Ten of Canada's 29 marine ecoregions have some protected area, as outlined in Table B4. The area under protection includes all Marine Protected Areas (MPAs) from all federal and provincial sources. MBSs contribute to the total protected area in nine ecoregions, while NWAs contribute to four.

Table B4: Marine Protected Areas in Canada, by marine ecoregion

Marine ecozone	Marine ecoregion	Area protected (ha)	MBS in ecoregion?	NWA in ecoregion?
Arctic Archipelago	Coastal Beaufort	1 366 720	✔	
	Eastern Arctic Shelf	1 268 700	✔	✔
	Hudson Bay	83 000	✔	
	Western Islands	127 200	✔	
Atlantic	Bay of Fundy	1 688	✔	✔
	Georges Bank	1 000	✔	
Northwest Atlantic	Gulf of St. Lawrence	142 098	✔	✔
	Labrador Shelf	30 580	✔	
Pacific	Georgia Basin	5 039	✔	✔
	North Shore	418 548		

Protecting species at risk

Protecting species at risk requires a variety of mechanisms, ranging from applying best land use practices and stewardship programs to protected areas. Regarding protected areas, where should efforts be placed on a national scale? Figure B4 is one perspective. This prioritization map was prepared by focusing on ecoregions where the highest risk to biodiversity is found (based on a combination of land use stresses, ecosystem conditions, and management responses). These areas were then compared using a ratio of number of COSEWIC species at risk to total vertebrate species. This figure was then compared with the amount of land in NWAs and other protected space, assuming that most protected area contributes to wildlife protection to some degree. The four-class map shows ecoregions where the establishment of protected areas for wildlife species could be a higher priority.

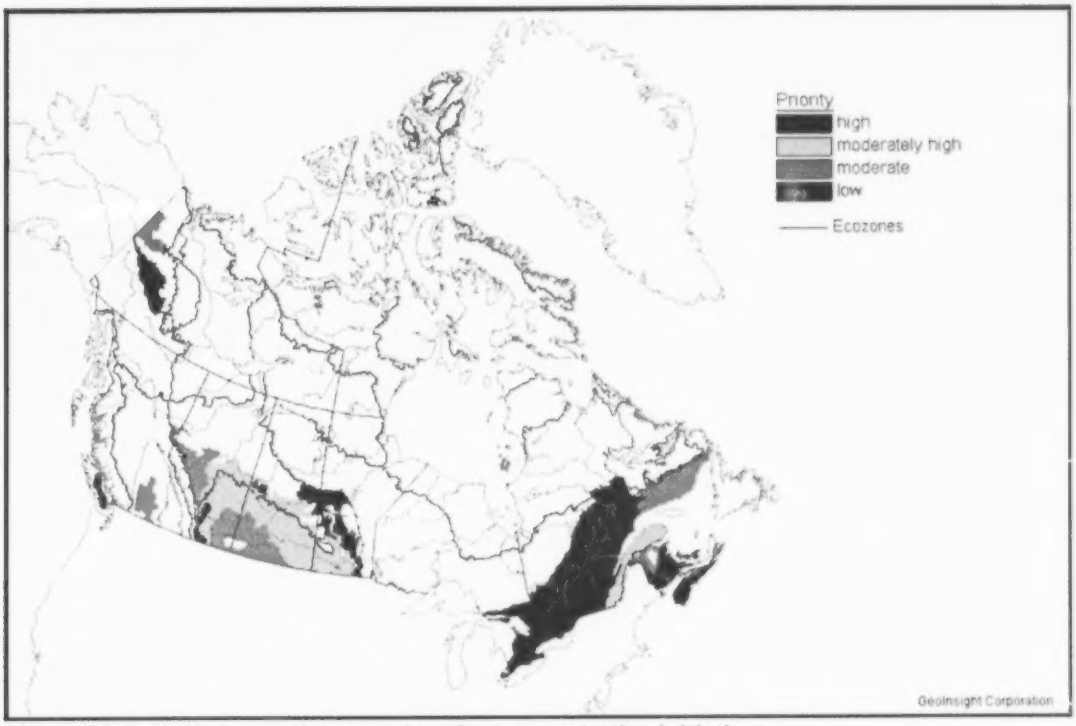

Figure B4: Priority terrestrial ecoregions for new protecting initiatives

Table B5 lists ecoregions that have high, moderate, or low risk to biodiversity loss, a high number of species at risk relative to species richness, and a low amount of protected space. Ecoregions with 20 or more species at risk and their relationship to NWAs are included in the table.

Table B5: Species at risk relative to NWA and MBS sites

Ecoregion name	COSEWIC species at risk (no. of species)	Biodiversity risk	Terrestrial vertebrate species richness (no. of species)	NWAs (no. of sites)	NWA area (ha)	MBSs (no. of sites)
Lake Erie Lowland	110	High	525	4	4 314	1
Manitoulin-Lake Simcoe	59	High	443	4	334	2
St. Laurent Lowlands (Ontario)	37	High	390	4	1 925	17
Algonquin-Lake Nipissing	34	Moderate	381	1	1	2
St-Laurent Lowlands (Quebec)	28	High	413	2	190	7
Eastern Vancouver Island	28	Moderate	269	1	82	3
Mixed Grassland	26	Moderate	320	1	427	3
Thompson-Okanagan Plateau	26	Moderate	369	0	0	0

Table B5: Species at risk relative to NWA and MBS sites (*cont'd*)

Ecoregion name	COSEWIC species at risk (no. of species)	Biodiversity risk	Terrestrial vertebrate species richness (no. of species)	NWAs (no. of sites)	NWA area (ha)	MBSs (no. of sites)
Moist Mixed Grassland	25	High	371	6	20 559	4
Okanagan Range	22	Low	343	0	0	0
Southern Laurentians	21	Moderate	361	0	0	0
Lower Mainland	21	High	327	2	424	2
Appalachians	20	High	329	3	2 700	2
Pacific Ranges	20	Low	357	0	0	0
Columbia Mountains and Highlands	20	Low	343	0	0	0
Okanagan Highland	20	Low	306	1	792	1

Haber (1995) also documented that at least 25 (18%) of Canada's NWAs and MBSs have five or more nationally or provincially listed species at risk (Table B6). Five sites have 24–56 species at risk present. Twelve of these 25 sites lie in the Great Lakes – St. Lawrence basin.

Table B6. Summary of NWAs and MBSs with the greatest numbers of species at risk[1] (Haber 1995)

NWA or MBS	No. of fauna species at risk	No. of flora species at risk	Total no. of species at risk
Long Point NWA	14	42	56
Philipsburg MBS	10	33	43
Lac Saint-François NWA	29	7	36
Victoria Harbour MBS	1	31	32
Mont-Saint-Hilaire MBS	1	23	24
St. Clair NWA	7	12	19
Cap Tourmente NWA	6	11	17
Ile aux Hérons NWA	0	17	17
Vaseux-Bighorn NWA / Vaseux Lake MBS	9	8	17
Senneville MBS	4	12	16
Prairie NWA	4	11	15
Iles de la Paix NWA/MBS	1	12	13
Last Mountain Lake NWA/MBS	10	3	13
Prince Edward Point NWA	8	3	11
Big Creek NWA	7	3	10
Sable Island MBS	1	9	10
Nicolet MBS	0	9	9
Alaksen NWA / George C. Reifel MBS	5	1	6
Old Wives Lake MBS	3	3	6
Tway NWA	2	4	6

Table B6. Summary of NWAs and MBSs with the greatest numbers of species at risk[1] (Haber 1995) (*cont'd*)

NWA or MBS	No. of fauna species at risk	No. of flora species at risk	Total no. of species at risk
Baie de L'Isle-Verte NWA / L'Isle-Verte MBS	4	1	5
Banks Island No. 1 MBS	3	2	5
Chignecto NWA	5	0	5
Pointe-au-Père NWA	5	0	5
Pointe de l'Est NWA	2	3	5

[1] Only sites with five or more species at risk provincially and nationally are included in the table.

Haber (1995) also recorded sites in the CWS network affected by invasive plant species (Table B7). The occurrence of many invasive species significantly impacts the survival and distribution of species at risk. This occurs through habitat infilling by plants such as purple loosestrife.

Table B7. Invasive plant occurrences in NWAs and MBSs (Haber 1995)

	Invasive plants present and comments
British Columbia	
Alaksen NWA	*Cirsium arvense* – Canada thistle; one of the dominant plants of uncultivated flatland meadows within the dikes *Iris pseudacorus* – yellow flag; one of the dominants in marshland sites with cattails (only a minor invasive nationally) *Lythrum salicaria* – purple loosestrife; one of the dominants in cattail–iris communities in the marshlands *Phalaris arundinacea* – reed canary grass; one of the dominant plants of uncultivated flatland meadows within the dikes
Columbia NWA	*Cirsium arvense* – Canada thistle occurs in the Wilmer Unit
Qualicum NWA	*Phalaris arundinacea* – reed canary grass occurs in the Nanoose Bay Unit
Vaseux-Bighorn NWA / Vaseux Lake MBS	*Cirsium arvense* – Canada thistle *Bromus inermis* – smooth brome grass *Melilotus alba* and *M. officinalis* – white and yellow sweet-clover *Myriophyllum spicatum* – Eurasian watermilfoil; in dense mats
Alberta	
Inglewood MBS	*Cirsium arvense* – Canada thistle
Meanook NWA	*Caragana arborescens* – Siberian peashrub; a horticultural shrub planted as shelter-belts near buildings has invaded portions of the adjacent native woodland (only a minor invasive)

Table B7. Invasive plant occurrences in NWAs and MBSs (Haber 1995) (*cont'd*)

	Invasive plants present and comments
Saskatchewan	
Bradwell NWA	*Bromus inermis* – smooth brome grass; commonly planted *Melilotus* spp. – sweet-clovers; commonly planted
Last Mountain Lake NWA/MBS	Contains exotics at this site. *Bromus inermis* – smooth brome grass; dominates extensive areas in both the NWA and MBS. It is the most prolific and commonly encountered invasive species in the area. Plants originated from hay fields seeded to brome and alfalfa by CWS in the late 1960s. *Cirsium arvense* – Canada thistle; common throughout *Melilotus* spp. – sweet-clovers; found throughout the area to varying degrees. Abundance varies from year to year. *Phalaris arundinacea* – reed canary grass; occurs in small patches in the northeast corner of NWA
Prairie NWA	*Bromus inermis* – smooth brome grass; units 5 and 23 *Cirsium arvense* – Canada thistle; units 1, 2, 5, 7, 10, 12, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, and 27
Raven Island NWA	*Melilotus* spp. – sweet-clovers; seeded with alfalfa on cultivated land
Redberry Lake MBS	*Cirsium arvense* – Canada thistle
Stalwart NWA	*Bromus inermis* – smooth brome grass *Cirsium arvense* – Canada thistle *Melilotus alba* and *M. officinalis* – white and yellow sweet-clover
Tway NWA	*Bromus inermis* – smooth brome grass *Cirsium arvense* – Canada thistle *Melilotus* spp. – sweet-clovers

Table B7. Invasive plant occurrences in NWAs and MBSs (Haber 1995) (*cont'd*)

	Invasive plants present and comments
Ontario	
Big Creek NWA	*Hydrocharis morsus-ranae* – European frog-bit; in channels and wetlands around the community of Long Point *Lythrum salicaria* – appears rarely and is removed by staff *Myriophyllum spicatum* – Eurasian watermilfoil *Phalaris arundinacea* – reed canary grass
Long Point NWA	*Butomus umbellatus* – flowering rush; abundant but local in wetlands with emergent aquatics *Bromus inermis* – smooth brome grass *Cirsium arvense* – Canada thistle; occasional in weedy habitats and in oak savanna *Euphorbia esula* – leafy spurge; occasional and localized in oak savanna on Courtright Ridge *Hydrocharis morsus-ranae* – European frog-bit; in channels and marshes of Crown marsh *Lythrum salicaria* – purple loosestrife; occasional and local in wetlands with emergent aquatics near base of Long Point. It has been removed repeatedly from Crown land at eastern tip. *Myriophyllum spicatum* – Eurasian watermilfoil; occasional and widespread in open water wetland communities, but locally dominant near base of Long Point *Phalaris arundinacea* – reed canary grass; occasional and widespread in wet meadows, wetlands with emergent aquatics, and weedy habitats *Rhamnus cathartica* – common buckthorn; rare
Prince Edward Point NWA	*Phalaris arundinacea* – reed canary grass *Syringa vulgaris* – lilac; planted relicts on old farmsteads
Rideau MBS	*Hydrocharis morsus-ranae* – European frog-bit *Lythrum salicaria* – purple loosestrife (assumed to be present)
St. Clair NWA	*Butomus umbellatus* – flowering-rush *Bromus inermis* – smooth brome grass *Cirsium arvense* – Canada thistle *Lonicera tatarica* – Tatarian honeysuckle *Lythrum salicaria* – purple loosestrife; a common component in the marsh *Myriophyllum spicatum* – Eurasian watermilfoil *Phalaris arundinaceae* – reed canary grass *Rhamnus catharticus* – common buckthorn *Rhamnus frangula* – glossy buckthorn
Wye Marsh NWA	*Lythrum salicaria* – purple loosestrife *Rhamnus cathartica* – common buckthorn

Table B7. Invasive plant occurrences in NWAs and MBSs (Haber 1995) (*cont'd*)

	Invasive plants present and comments
Quebec	
Baie de L'Isle-Verte NWA	*Bromus inermis* – smooth brome grass
Cap Tourmente NWA	*Bromus inermis* – smooth brome grass; occasionally in woods and fields *Butomus umbellatus* – flowering-rush *Lythrum salicaria* – purple loosestrife *Cirsium arvense* – Canada thistle; along railway tracks *Melilotus officinalis* – yellow sweet-clover; old fields
Îles de Contrecoeur NWA	*Bromus inermis* – smooth brome grass *Butomus umbellatus* – flowering-rush; occurs in dense small patches *Cirsium arvense* – Canada thistle *Lythrum salicaria* – purple loosestrife; widely distributed throughout the wetlands. On higher ground, its presence indicates sites that are flooded in spring. *Melilotus alba* – white sweet-clover; found mainly on the slopes of hillsides, and commonly associated with other weedy species, including reed canary grass and Canada thistle; occurs on île Lamoureux, île de la Cache, île aux Sternes, and île Saint-Ours *Myriophyllum spicatum* – Eurasian watermilfoil; comprises about 50% (116 ha) of the zone occupied by submergent aquatic vegetation in shallow water. *Phalaris arundinacea* – reed canary grass; it forms dense closed cover and occurs in both moist and dry sites.
Îles de la Paix NWA/MBS	*Butomus umbellatus* – flowering-rush *Lythrum salicaria* – purple loosestrife *Phalaris arundinacea* – reed canary grass
Lac Saint-François NWA	*Bromus inermis* – smooth brome *Butomus umbellatus* – flowering-rush *Cirsium arvense* – Canada thistle *Hydrocharis morsus-ranae* – European frog-bit *Lonicera tatarica* – Tatarian honeysuckle *Lythrum salicaria* – purple loosestrife *Melilotus alba* – white sweet-clover *Melilotus officinalis* – yellow sweet-clover *Phalaris arundinaceae* – reed canary grass
L'Ile Carillon MBS	*Lythrum salicaria* – purple loosestrife *Myriophyllum spicatum* – Eurasian watermilfoil *Phalaris arundinacea* – reed canary grass
L'Isle-Verte MBS	*Lythrum salicaria* – purple loosestrife
Pointe-au-Père NWA	*Phalaris arundinacea* – reed canary grass
Pointe de l'Est NWA	*Lythrum salicaria* – known from the islands, but its occurrence in the NWA is not certain
Saint-Vallier MBS	*Lythrum salicaria* – purple loosestrife
Senneville MBS	*Lythrum salicaria* – purple loosestrife *Myriophyllum spicatum* – Eurasian watermilfoil

Table B7. Invasive plant occurrences in NWAs and MBSs (Haber 1995) (*cont'd*)

	Invasive plants present and comments
New Brunswick	
Cape Jourimain NWA	*Cirsium arvense* – Canada thistle
	Lythrum salicaria – purple loosestrife
	Phalaris arundinacea – reed canary grass
Portage Island NWA	*Lythrum salicaria* – purple loosestrife
	Phalaris arundinacea – reed canary grass
Shepody NWA	*Lythrum salicaria* – purple loosestrife
	Phalaris arundinacea – reed canary grass
Tintamarre NWA	*Lythrum salicaria* – purple loosestrife
	Phalaris arundinacea – reed canary grass
Nova Scotia	
Kentville MBS	*Phalaris arundinacea* – reed canary grass

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Haber, E. 1995. *Species at risk and invasive plants of National Wildlife Areas and Migratory Bird Sanctuaries*. Contract report prepared for Canadian Wildlife Service, Environment Canada, Ottawa, Ontario. 170 pp.

IUCN (World Conservation Union). 1994. *Guidelines for protected area management categories*. IUCN Commission on National Parks and Protected Areas, with the assistance of the World Conservation Monitoring Centre, Gland, Switzerland, and Cambridge, United Kingdom.

APPENDIX C: HISTORY OF THE NATIONAL WILDLIFE AREAS AND MIGRATORY BIRD SANCTUARIES PROGRAMS

Historical background to the NWA program

The establishment of a federal system of National Wildlife Areas (NWAs) dates back to 1966; however, the seeds for the program were sown much earlier. The formation of the Dominion Wildlife Service in 1947 placed biologists in the field and initiated population studies and surveys of "wildlife conditions." While habitat protection was not emphasized, Canadian Wildlife Service (CWS) biologists were undertaking exploratory population studies throughout the 1950s and accumulating extensive habitat information. In the early 1960s, the CWS began to commit resources to habitat management studies across the nation. Emerging from these studies was recognition of the need to maintain prairie potholes and wetlands in southern Ontario and on both coasts.

The Resources for Tomorrow Conference, held in Montreal in October 1961, was a key milestone in defining the need for the establishment of a national wildlife policy including habitat components. Several key presentations at this conference were to have a major impact on the establishment of a CWS habitat program by mid-decade. Clark, in his paper "Wildlife in Perspective," noted that "Man's destruction of, or interference with, wildlife habitat is more dangerous than his hunting."[1] David A. Munro, then Chief Ornithologist with CWS, in his presentation "Legislative and Administrative Limitations on Wildlife Management," stated: "The game acts and the *Migratory Birds Convention Act* are largely concerned with controlling the harvest of the resource. While the reservation and acquisition of lands for wildlife habitat do not seem to be prevented by present legislation, there is a clear need for specific statutory provision for those purposes." Regarding the federal role, Munro further elaborated that "as with the provincial game statutes, there seems to be no legal impediment to acquisition of lands by the federal government for migratory bird management, but the precedent is yet to be established. This sort of activity urgently requires study."[2] A third paper by W. Winston Mair, "Elements of a Wildlife Policy," proposed as a matter of policy that "Planned programs for the use of land and water are basic to the maintenance of wildlife species. Not only must specific environments be maintained to perpetuate wildlife, but significant areas of Crown lands must be set aside for public hunting, fishing, and associated recreational activities."[3]

The Resources for Tomorrow Conference planted the seeds for a wetlands purchase program. The passage in 1962 of the *Agricultural Rehabilitation and Development Act* (ARDA) greatly enhanced an appreciation of habitat in the mix of needed conservation initiatives. The Canada Land Inventory conducted under ARDA included capability mapping for waterfowl habitat and resulted in an extensive cartographic habitat database for most areas of southern Canada. Activities associated with ARDA brought CWS biologists in direct contact with agricultural engineers. These activities also brought further involvement in agriculture–wildlife habitat interactions, such as agricultural programs on the Prairies focusing on draining prairie potholes. Such threats posed to wildlife habitat convinced CWS to begin an experimental prairie pothole leasing program in 1963 — the first wildlife habitat securement program to be launched by the federal government.

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[1] Resources for Tomorrow Conference Background Papers, Volume 2, July 1961, p. 837.
[2] Resources for Tomorrow Conference Background Papers, Volume 2, July 1961, pp. 867, 874.
[3] Resources for Tomorrow Conference Background Papers, Volume 2, July 1961, p. 931.

By the mid-1960s, habitat management was well developed. The pilot program to lease prairie potholes expanded from 11 to 50 agreements.[4] The annual report of the Department of Northern Affairs and National Resources for 1964–1965 contained a prediction that by 1970, the program to maintain wetlands for waterfowl would be the major item in the budget of the CWS[5] and suggested that about 4 million acres (2.6 million hectares) of prairie pothole land needed to be preserved. Support for such predictions came from the highest level within the Department. The Honourable Arthur Laing, the Department's Minister, participated in the Council of Resource Ministers meeting in Victoria in May 1965 that resulted in the announcement of a proposal for a National Wildlife Policy.[6] Minister Laing announced that such a program would take "positive steps to preserve waterfowl habitat through leasehold agreements and purchases." At the 29th Federal–Provincial Wildlife Conference held in Winnipeg in June 1965, Minister Laing elaborated further on his proposed National Wildlife Program. He suggested that there should be a *Canada Wildlife Act* and that Canada should take actions to fulfil intentions implied by the Migratory Birds Treaty (established in 1917 between Great Britain on behalf of Canada and the United States) to instigate programs to preserve and manage wetlands. He announced the government's intention to create a major 10-year expansion to the Prairie Pothole Leasing Program as well as "preservation of waterfowl habitat by outright acquisition as well, particularly of those large marshes all across Canada that are so important for migrant ducks and geese, and also for bird watchers and hunters. With respect to these areas, we plan through prior consultation with the provinces to develop plans for co-operation in their acquisition and management. We are firm in our belief that the areas of habitat upon which depend the survival and significant public use of the species must be maintained. We will be flexible in working out arrangements for doing so. As a beginning, we envision an annual expenditure of $400,000 for five years."[7]

Thus, the concept of a wetlands acquisition program was firmly entrenched in the CWS project planning for 1966–1967. On April 6, 1966, Minister Laing tabled the National Wildlife Policy and Program in the House of Commons. This ambitious document was considered the most substantial statement made in Parliament on the topic of wildlife since the passage of the *Migratory Birds Convention Act*.[8] The National Wildlife Policy and Program greatly expanded the CWS role in many areas, including maintenance and management of migratory bird habitat. Minister Laing outlined a seven-point plan for migratory bird habitat,[9] summarized below:

1. Suitable wetland habitat in amounts sufficient to support desired populations of ducks and geese will be preserved by acquisition, leases, or other form of agreement.
2. Agreements may be concluded with provinces desiring to participate in acquisition or management of habitat.
3. When it is economically feasible, habitat will be improved so as to increase its carrying capacity for birds.
4. Management plans for all areas (in regions where crop damage by birds may occur) will include features designed to minimize or eliminate damage.
5. Land managed for migratory birds should be available for public use as far as possible.
6. Land secured primarily for the preservation of migratory bird habitat may be used for other productive purposes, if they are not incompatible.

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[4] Burnett, J.A., A Passion for Wildlife: A History of the Canadian Wildlife Service, 1947–1997. The Canadian Field Naturalist, Volume 113, 1999, p. 81.

[5] Annual Report, Department of Northern Affairs and National Resources, 1964–1965, p. 41.

[6] Burnett, A Passion for Wildlife, 1999, p. 81.

[7] Laing, A., Minister of Northern Affairs and Natural Resources, Wildlife Is for People, Summary Notes and Papers of the 29th Federal–Provincial Wildlife Conference, pp. 60, 61.

[8] Burnett, A Passion for Wildlife, 1999, p. 82.

[9] Canada's National Wildlife Policy and Program, A statement made by The Honourable Arthur Laing, Minister of Northern Affairs and National Resources in the House of Commons on 6 April 1966. 12 pp. (reprint), habitat references, pp. 4–6.

7. Two programs to facilitate adequate control of wetland habitat are planned: (a) Agreements with landowners on the Prairies (lease payments) to maintain about two-thirds of the six million potholes and their surrounding cover; and (b) purchase of long-term lease of large marshes that require management for great productivity and public use.

Emergence of the NWA program

While the enabling legislative base for land programs would not be proclaimed for another seven years, the April 1966 ministerial statement was sufficient to launch CWS into wetlands acquisition, and the NWA program was born. By May 1966, new positions for "Conservation and Development" biologists were created in most field offices across Canada in order to drive this new initiative. Initially, the Department set out forecasts of needing $5 million annually for the Prairie wetland leasing program and an additional $400,000 for wetland purchase in other provinces. While departmental annual reports for 1965–1966 and 1966–1967 reiterated those amounts, the funds never actually materialized. A sum of only $1.2 million was assigned to CWS annually for habitat securement.[10]

Conservation and Development biologists prepared wetlands acquisition priority lists, in consultation with the provinces, and wrote proposals for the first site purchases. By early 1967, the 600-ha John Lusby Salt Marsh in northern Nova Scotia was acquired, followed soon after by purchase of a second Nova Scotia site at Sand Ponds and, in Saskatchewan, a section of Last Mountain Lake wetlands. The $1.2 million annual funding allotment was maintained through most of the 1970s, declining to $400,000 and disappearing altogether by 1985.

In the first 10 years (1966–1976) of the program, a total of 18 700 ha of wetland habitat had been acquired at a cost of $8.7 million. The forecast extension of the program called for the purchase of a further 28 300 ha by 1986 and another 13 800 ha in the 1986–1996 period. The projection for the 30-year program (1966–1996) was acquisition of a total of 60 800 ha at a cost of $52 million (in 1976 dollars).[11]

Policy development for the NWA program

The Minister's statement tabled in the House in April 1996 also served as the initial policy direction for the new program. The 1966 Policy and Program Statement saw the need for habitat preservation, almost totally in the context of wetlands for waterfowl. All of the purchases during the first 10 years reflected this narrow focus, rather than migratory birds as a whole. By 1976, the CWS was suggesting broadening the program to consider conserving habitat for non-game birds and other wildlife, including rare and endangered species. It should be noted that in mid-2000, this broadened focus is the cornerstone of programs in place that CWS leads (North American Waterfowl Management Plan [NAWMP], North American Bird Conservation Initiative, and Habitat Stewardship Program). In addition to outright purchase by the federal government, there was also an emphasis on developing federal–provincial cooperative projects.[12]

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[10] Annual Report, Department of Northern Affairs and National Resources, 1965/1966; Annual Report, Department of Indian Affairs and Northern Development, 1966/1967 and 1967/1968.

[11] Loughrey, A.G., The Wildlife Habitat Conservation Program of the Canadian Wildlife Service: A summary of progress 1966–1976 and a forecast for 1977–1986, 10 November 1976: departmental report to the Treasury Board Secretariat.

[12] Loughrey, A.G., The Wildlife Habitat Conservation Program of the Canadian Wildlife Service, 1976.

The passage of the *Canada Wildlife Act* in 1973 in theory enabled a broadening of many aspects of the habitat program. However, by 1976, some provinces were becoming increasingly reluctant to endorse federal ownership of land, and effective working agreements under the *Canada Wildlife Act* were slow to develop. Thus, CWS needed an updated policy statement for the program. Nolan Perret, in consultation with regional habitat heads, drafted a document entitled "Proposed Canadian Wildlife Service Habitat Program — Objectives and Policy" in May 1977.[13] This draft policy statement was incorporated into a larger statement redefining the "Objectives and Goals for the Migratory Birds Conservation Program of CWS" and was accepted by the CWS Board of Directors on 30 June 1977. The document laid out six clear objectives for the Migratory Birds Program. A Habitat Program appears under Objective No. 2:

> *"To ensure the preservation and management of important, critical and unique habitats for the primary benefit of migratory birds and other wildlife."*[14]

This objective greatly expanded the habitat program focus laid out in the 1966 Policy that stressed wetlands preservation for waterfowl. Under this Habitat Program Objective were seven goals,[15] listed below in an abbreviated form:

1. To identify, evaluate, classify, and map migratory bird habitats and establish regional and national priorities for their preservation and management, and, in cooperation with the provinces, to identify, evaluate, classify, and map wildlife habitats of national importance and establish provincial, regional, and national priorities for their protection and management.
2. To preserve important wildlife habitats in all regions of Canada for conservation, research, and interpretation. A broad approach to habitat conservation should include acquisition in fee simple, leasing, zoning, and other means.
3. To ensure the preservation of unique and scarce natural ecosystems and their communities of migratory birds: the CWS will acquire habitat for wildlife, other than migratory birds, only at the request of and in agreement with the provinces. Habitat thus acquired must be critical or unique in nature; the CWS will acquire habitat for the purpose of conducting research on wildlife ecology.
4. To secure Canadian adherence to the Ramsar Convention.
5. To manage important, critical, or unique habitats for the primary benefit of wildlife.
6. To promote understanding and appreciation of the role that habitat plays in maintaining wildlife populations; to encourage the protection and development of wildlife habitat by the private sector and public agencies; and to foster good land use practices that enhance wildlife populations.
7. To increase our knowledge and understanding of the interrelationships of habitat components and the techniques for manipulating or using those components to improve the carrying capacity of wildlife habitat.

This 1977 policy statement also laid out for the first time the term "wildlife area." A wildlife area acquired and managed by the federal government, it stated, "shall be known and identified as a National Wildlife Area." A wildlife area acquired and managed jointly by agreement between a province and the federal government, it further noted, may be known and identified as a "Cooperative Wildlife Area."

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[13] Perret, N.G., Proposed CWS Habitat Program Objectives and Policy, CWS internal report, 6 May 1977, 11 pp.
[14] Objectives and Goals for the Migratory Birds Conservation Program, Canadian Wildlife Service, 1977–82, 18 pp., accepted by the CWS Board of Directors, 30 June 1977.
[15] Perret, Proposed CWS Habitat Program Objectives and Policy, 1977.

The policy statement guided the program through to the mid-1980s, when program cuts eliminated the CWS habitat acquisition fund and its wildlife interpretation programs. NWA land purchases ceased, except for minor infilling and land transfers. However, the implementation of the Habitat Joint Ventures under NAWMP, commencing in 1989, saw a major increase in wetland habitat protection by the Plan's partners. The Habitat Stewardship Program, introduced in 2000, focused on species at risk habitats and has enhanced such habitat protection capacity. MBSs also have remained a valued tool for protecting areas for migratory waterfowl needs.

In September 1990, CWS Habitat Managers presented to senior management the document entitled "Habitat Conservation — CWS Strategies for the 1990s." This paper was replaced with CWS tabling of "An Action Plan for Wildlife Habitat Conservation" at the Tri-Council Meeting for Parks, Wildlife and Environment Ministers in November 1992. The 1992 document set out broad strategies and actions for the CWS to achieve wildlife habitat conservation objectives for the remainder of the decade.[16] The continuance of the National Wildlife Area program is under Sub-Objective 1 of the Action Plan:

> "*To maintain and/or enhance wildlife habitat on federal lands. The CWS will establish and maintain key habitats in a national network of National Wildlife Areas.*"

The Action Plan lists five strategies to accomplish this goal:

1. developing and implementing an NWA Systems Plan to guide the selection, acquisition, and management of NWAs;
2. effectively managing existing NWAs;
3. developing creative approaches to the securement of NWAs;
4. using acquisition to secure future NWA sites where other approaches are proven inappropriate or unavailable; and
5. establishing a federal funding capability to participate with other agencies to conserve key habitats.

The strategies outlined above remain the direction used by CWS managers. However, in the spring of 2000, CWS Habitat Conservation Program staff were reexamining strategic directions and core strategies in order to ensure that the federal government is fully addressing its obligations under existing and new legislation.

Regulatory context for NWAs

The need for a *Canada Wildlife Act* was first mentioned by Minister Laing in 1965, and the 1966 National Wildlife Policy and Program laid the groundwork for its eventual proclamation. However, the legislative base for undertaking the work outlined in the 1966 Policy and Program did not get drafted until the early 1970s. That delay was largely due to a sequence of administrative changes within the Department. In hindsight, the delay was fortunate. The 1966 policy statement focused attention on wetlands and waterfowl, but in implementing the program, it was recognized that there was a need for a much broader range of habitat protection for other species. The *Canada Wildlife Act* provided for that broader focus.

The *Canada Wildlife Act* received Royal Assent on 27 July 1973. The Act greatly broadened the definition of wildlife and explicitly stated that all provisions of the Act extend to wildlife habitat

[16] Action Plan for Wildlife Habitat Conservation: Canadian Wildlife Service, November 1992, 27 pp.

(section 2.2). Two sections of the Act deal specifically with land (sections 4 and 10). Under those sections, the Minister has the authority to (a) assign the administration, management, and control of federal lands that are required for wildlife research, conservation, or interpretation; and (b) acquire or lease any lands for the purpose of research, conservation, and interpretation in respect of migratory birds or other wildlife if the province affected agrees. The Act legitimized the land purchases by CWS for the intervening six years since the 1966 Policy and Program. The Act also broadened the scope to all migratory birds, with the concurrence of the provinces.

Passage of the *Canada Wildlife Act* accelerated the NWA land purchase program. By 1976, nearly 19 000 ha had been acquired at 34 sites across the country. Site managers called for regulations under the Act in order to protect these sites. Habitat heads and enforcement staff in May 1977 reviewed and revised proposed regulations. The Wildlife Area Regulations became law on 24 October 1977.[17] Site managers finally had a regulatory mechanism to issue permits and post notices regarding public use of these Crown lands.

The 1973 *Canada Wildlife Act* gave authority to the Minister to acquire and designate terrestrial habitats as wildlife areas. The definition of "public lands" under the Act is "lands belonging to Her Majesty...including any waters on or flowing through said lands." Amendments to the *Canada Wildlife Act* in July 1994 expanded the definition of public lands to include the internal waters and territorial sea of Canada.[18] Section 4 was also amended to include a new authority to designate MWAs (section 4.1: "The Governor in Council may establish protected marine areas within any fishing zone prescribed under section 4 of the *Territorial Sea and Fishing Zones Act*"). Thus, the Minister of the Environment now has the authority to establish MWAs out to the 200-nautical-mile limit. While proposals for such MWAs are under consideration, no new resources came with this extended authority, and no areas have been so designated to date.

Role of NWAs in the delivery of federal policies, programs, and legislation

In June 1989, an NWA Task Force at CWS headquarters presented a draft outline of an NWA Systems Plan.[19] The Task Force examined the intentions of the wording under the *Canada Wildlife Act* and recommended the following statements of purpose and definitions:

Purposes of National Wildlife Areas:
1. To conserve key (critical, essential) habitat for migratory birds and, if determined to be in the national interest and with the support of provinces, other species;
2. To promote public awareness (and use) of wildlife utilizing a National Wildlife Area where such activity can occur within the context of an approved management plan.

NWA Definition:
A National Wildlife Area (NWA) is an area of land and/or water set aside and owned by the Government of Canada for the purpose of conserving key (critical, essential) habitat for migratory birds. If determined to be in the national interest, an NWA may also be set aside and owned by the Government of Canada with support of the province(s) to conserve key habitat for other species.

While the foregoing purpose and definition have never been officially adopted by CWS, they serve as a useful starting point in examining the role that NWAs play in the delivery of CWS habitat strategies

[17] Wildlife Area Regulations, *Canada Wildlife Act*, 9/11/77, *Canada Gazette*, Part II, Volume 111, No. 21.
[18] *Canada Wildlife Act*, July 1994, R.S., 1985, c w-9; 1994, c.23, s.2(F).
[19] National Wildlife Area Systems Plan, Draft Outline, NWA Task Force Report, 13 June 1989.

and linkages to other policies and programs. The physical network of NWAs across the nation along with the management of those sites are intimately linked to most national-level, habitat-related policies and strategies. The direct contribution that CWS makes to the habitat needs of wildlife is an important signal to other partners that the senior level of government is willing to play a contributing and leadership role in habitat conservation.

NWAs are one of the foundation stones in building a national protected areas program for Canada. The legislative base (*Canada Wildlife Act*) is solid, and the regulatory mechanism (Wildlife Area Regulations) is very straightforward. Few, if any, other conservation agencies have anything comparable.

At the present time, the CWS has fiscal constraints in completing or enlarging the NWA and MBS network. Will the future see expansion, a status quo situation, or other visions for the network on Canada's NWAs and MBSs? If expansion is envisaged, renewed federal funding is necessary to restore program capacity so that the CWS can participate as a significant partner in national protected areas and landscape ecological integrity programs. The current NWA and MBS network, and any future extension of the program, can play a continuing significant role in the delivery of many federal policies, strategies, and legislation, including the CWS Habitat Strategy for the 1990s, the Canadian Biodiversity Strategy, the Federal Policy on Wetland Conservation, the North American Bird Conservation Initiative, and the *Species At Risk Act.*

The CWS Habitat Strategy

The CWS Habitat Strategy, drafted in 1990, was replaced by the paper "Canadian Wildlife Service Habitat Conservation Program: Strategic Directions" in July 2000.[20] A new document, "The Canadian Wildlife Service Strategic Plan 2000–2010," released in October 2000, also contains strategic directions important for habitat conservation.[21] It is interesting to compare the goal/mission statements from each of the above-mentioned documents:

- CWS Habitat Strategy (1992 Action Plan): "Canada's wildlife habitat should be maintained or enhanced to sustain all species indigenous to Canada."[22]
- CWS Habitat Conservation Program — Strategic Directions (draft document): "To conserve, protect, and enhance the habitat of Canadian wildlife."[23]
- CWS Strategic Plan 2000–2010: "Conserve wildlife and the ecosystems of which they are a part with a particular focus on migratory birds and species-at-risk."[24]

The first two statements are strikingly similar, while the third, a broader mission statement for the entire CWS agency, properly focuses on migratory birds and species at risk. The NWA and MBS program figures prominently in the delivery of these strategies.

The 1990 Habitat Strategy lists seven main goals and six sub-goals under Goal No. 1. The NWA network can be linked directly in delivery of Goal Nos. 1, 5, 6, and 7 and indirectly to the three others.

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[20] CWS Habitat Conservation Program — Strategic Directions, Draft, February 2000, 5 pp., prepared by K. Davidson, CWS Atlantic Region.

[21] The CWS Strategic Plan 2000–2010: The Path Forward for Environment Canada's Wildlife Conservation Program, Draft, 23 February 2000, prepared by R.D. Elliot and D.G. Bliss, CWS Atlantic Region.

[22] Action Plan for Wildlife Habitat Conservation: Canadian Wildlife Service, 1992.

[23] CWS Habitat Conservation Program, 2000.

[24] The CWS Strategic Plan 2000–2010, 2000.

The section that follows looks back on these 1990 habitat goals and how they have served CWS in the past decade.

A further look at the 1990 Habitat Strategy

Goal No. 1: "*To maintain wildlife habitat throughout Canada by maintaining/enhancing wildlife habitat on provincial, private and municipal lands, on federal land, and on northern lands [e.g., in the Yukon, Northwest Territories, and Nuvavut]; supporting and maintaining productivity of marine wildlife habitats; encouraging support and maintenance; and protecting, maintaining, enhancing or rehabilitating habitat for endangered species under federal jurisdiction*"

NWA sites contribute significantly to the protected area family of sites across the nation. The sites have placed the federal government as a major player and partner in national habitat conservation efforts. Many of the NWA sites are outstanding examples of critically important habitats that needed national-level protection. Many other sites, not currently in the system, have been considered for attention, but resources have not generally been available in the 1990s to add new sites. However, four NWAs were established in the 1990s: Last Mountain Lake NWA in Saskatchewan in 1994; and Portobello Creek NWA in New Brunswick, Nirsutqavvik NWA in Nunavut, and Nisutlin River Delta NWA in Yukon in 1995. The legislative and regulatory instruments available to CWS to establish and manage such sites remain strong, flexible tools.

The NWA program and its site protection capabilities will have an increasingly important role to play in habitat protection for endangered species and marine wildlife habitats. As the *Species At Risk Act* comes forward, the NWA protective mechanism will likely achieve new prominence as one of the best tools to protect critical sites that harbour species that are in the federal interest. The marine protection capability afforded by the 1994 amendment to the *Canada Wildlife Act* will also be a mechanism to protect essential marine wildlife habitats. In addition to CWS, marine protection capability currently rests only with two other federal agencies, Fisheries and Oceans Canada and the Parks Canada Agency.

The CWS management, enhancement, and research activities associated with the operation of the NWA system have allowed the Service to develop a high level of expertise in these matters. That expertise allows CWS to provide a leadership and advisory role in influencing habitat protection and management on provincial, municipal, and private lands.

Goal No. 5: "*To contribute to the conservation of wildlife habitat internationally*"

A number of international treaties, agreements, and conventions now have an influence on CWS programs and place obligations on the agency. In delivery of those obligations under the Ramsar Convention, Canadian Biodiversity Strategy, Western Hemisphere Shorebird Reserve Network (WHSRN), and others, the NWA and MBS network plays a major role. Nine NWAs have been included in the list of Wetlands of International Importance, two are partially listed as WHSRN sites, and one (Long Point NWA) is a UNESCO Man and the Biosphere site. Not only do these internationally recognized sites contribute significantly to maintenance of specific populations, but ownership and management of those sites also provide CWS scientists with an opportunity to develop management expertise and thus provide leadership to other nations.

Goal No. 6: "*To support and promote the development of scientific expertise to improve the technical base for habitat conservation*"

The CWS has long used the federal wildlife properties as sites to undertake habitat management research, monitoring, evaluation, and enhancement activity. Such activity has been conducted by CWS staff and by cooperating university and other researchers. Knowledge gained from such activity on NWA and MBS sites has served to advance the technical base for habitat conservation across the nation.

Goal No. 7: "*To ensure that the importance of wildlife habitat in Canada is promoted*"

Several of the more prominent NWA and MBS sites have been used to highlight the importance of wildlife habitat. The Last Mountain Lake NWA was central in the Wildlife '87 Centennial celebrations. Cap Tourmente NWA still supports a wildlife interpretation program, and there is a Nature Centre at the Cape Jourimain NWA. The Wye Marsh in Ontario remains an NWA, but its interpretive program has been transferred to a non-government organization (NGO) partner. Nature trails and interpretive signage, some developed by NGO partners, occur on many NWA sites. Most of the sites in the system are open for public recreational use.

The Canadian Biodiversity Strategy

In June 1992, Canada signed the Convention on Biological Diversity (CBD) and six months later became the first industrialized nation in the world to ratify the Convention. Following the Convention coming into force in December 1993, Canada prepared and published the 1995 report "Canadian Biodiversity Strategy — Canada's Response to the Convention on Biological Diversity."[25] That document laid out eight strategies for protected areas in response to Article 8 of the Convention, designed to (a) establish protected areas to conserve biodiversity; and (b) develop guidelines for the selection, establishment, and management of those protected areas.

The strategies outlined in the document call for completion of "networks of protected areas representative of land-based natural regions and to accelerate protection of areas that are representative of marine natural regions." The strategies also call for the development of criteria to determine priority sites for protected area designation for species at risk and sites that support a high diversity of migratory birds. A follow-up report in 1997, "Implementing the Canadian Biodiversity Strategy — Protected Areas,"[26] outlined current federal activities and plans for implementing the Convention with respect to protected areas.

NWAs, established to conserve wildlife habitat, also contribute to representing the nation's diverse ecosystems. The sites are integral components of a network of protected areas as called for in the strategic directions in implementing the CBD. Since 1984, CWS has not been able to make large-scale land acquisitions for NWAs or MBSs, but rather has relied on donations, leases, land transfers, and agreements in the North. Nonetheless, Canada still endorsed its commitment to protecting habitat through the 1990 "Green Plan, A Wildlife Policy for Canada" and in November 1992 by signing "The Statement of Commitment to Complete Canada's Networks of Protected Areas." Thus, the maintenance and proper management of the existing sites in the NWA and MBS system along with the establishment of new sites are major delivery components in implementing the Convention.

[25] Canadian Biodiversity Strategy — Canada's Response to the Convention on Biological Diversity, 1995, 77 pp.
[26] Implementing the Canadian Biodiversity Strategy — Protected Areas, 1997.

The NWA and MBS program figures directly into the following targeted actions contained in the 1997 CBD Implementation Report:[27]

- protect special habitats through establishment and management of protected areas;
- support the protection of priority habitats and species by establishing National Wildlife Areas and by participating in partnership programs; and
- further expand the national network of protected globally significant wetlands in Canada, particularly in coastal zones.

In addition to those targets, a number of marine ecosystem targets have been established that link to the 1994 authority under the *Canada Wildlife Act* to establish Marine Wildlife Areas:

- develop criteria to guide identification and selection of Marine Wildlife Areas under the *Canada Wildlife Act*; and
- develop a regulation and strategy for Marine Wildlife Areas and continue marine bird inventories to identify important marine wildlife habitats.

To adequately protect and maintain the biological diversity of Canada's vast and diverse terrestrial and marine ecosystems, the cooperation and partnership of many organizations and agencies are needed. CWS is currently a major partner in habitat protection and, given adequate resources, has the legislative and regulatory instruments to contribute far more significantly in the delivery of Canada's obligations under the CBD.

Federal Policy on Wetland Conservation

The Federal Policy on Wetland Conservation was adopted in December 1991 after a three-year developmental and consultative process. The cornerstone of the policy is "no net loss of wetland functions"[28] on all federal lands and waters, with particular attention to federal areas set aside for conservation objectives, such as National Parks, NWAs, and MBSs. The stated objective of the policy is to "promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future."

By virtue of the historical development of the NWA and MBS program, many sites in the system are wetlands of significance to Canadians. Management of those sites has resulted in the restoration and enhancement of many hectares of wetlands that directly relate to the goals of the Federal Policy on Wetland Conservation. Wetland research activities on some of the sites have greatly strengthened an understanding of wetland dynamics and have pioneered enhancement techniques such as impoundment management to improve productivity. Such activity ensures a sound scientific basis for policy — one of the seven strategies of the Federal Policy on Wetland Conservation.

The nationally significant wetlands protected and managed in the NWA system link directly to most of the strategies in the policy: promoting wetland conservation, enhancing cooperation, conserving significant wetlands, ensuring a scientific basis, developing public awareness, and promoting international actions (e.g., Ramsar Convention, WHSRN).

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[27] Implementing the Canadian Biodiversity Strategy — Protected Areas, 1997.
[28] The Federal Policy on Wetland Conservation, 1991.

The *Species At Risk Act*

Federal and provincial Ministers responsible for wildlife signed the National Accord for the Protection of Species at Risk in October 1996. One component of that accord is managing habitat to prevent extinctions. Since the National Accord, Environment Canada, in consultation with other federal departments, has introduced new federal legislation — the *Species At Risk Act*. This new legislation, proclaimed in June 2003, provides the mandate for implementation of federal direction in species at risk species recovery. The *Species At Risk Act* includes provisions that allow other federal agencies to hold title to land for the purposes of the Act. This has recently been applied to the creation of the Suffield NWA in Alberta, a site under ownership of the Department of National Defence at Canadian Forces Base Suffield.

NWAs currently provide habitat for rare and endangered wildlife at several sites. The proposed Igalirtuuq MWA in the eastern Arctic would protect the bowhead whales of Isabella Bay and other northern sites and support breeding Peregrine Falcons. Pointe de l'Est NWA on the Magdalen Islands in Quebec protects the breeding habitat of the Piping Plover, and the new Suffield NWA in Alberta has populations of Ferruginous Hawk and Burrowing Owl, both threatened species. Other sites, such as Cape Jourimain and Chignecto NWAs in Atlantic Canada, harbour a number of regionally rare botanical species. While complete flora and fauna surveys are not as yet available for many NWA sites, undoubtedly the 51 NWA sites across the nation contribute to habitat site protection for many species on the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) list.

The *Species At Risk Act* places more emphasis on protecting habitats for species at risk. In support of initiatives such as this Act, CWS will continue to look at securing habitats that are in the federal interest, to be designated under the *Canada Wildlife Act* as NWAs and MWAs.

Other overarching policies and strategies

In addition to the policies and conventions mentioned above, the NWA program (and, by extension, MWAs) complements and supports Canadian commitments under a number of other agreements, including NAWMP, WHSRN, the Ramsar Convention, the Wildlife Policy for Canada, the Circumpolar Agreement on Conservation of Arctic Flora and Fauna, the Canada–Ireland Agreement on Brant (Brent) Goose, and various other frameworks and agreements.

Scheduling of a nationally or regionally important habitat site under the *Canada Wildlife Act* as an NWA is assigning one of the highest levels of conservation protection available in the nation. Departmental policy directs CWS to maintain the NWA network as part of a multi-partner protected areas network. A modest expansion of the NWA system would be a strong signal to other partners that the federal government is serious in contributing to protected area commitments in a number of policies, agreements, and conventions.

NWAs, MWAs, and other protected area programs

The first protected areas established in Canada were Banff National Park (1885) and Last Mountain Lake Bird Sanctuary (1887). Since that time, the network has grown to over 4000 government-owned

sites covering more than 90 million hectares of land.[29] The protected areas network includes national and provincial parks, wilderness areas, ecological reserves, sanctuaries, wildlife management areas, and designations such as Ramsar sites and shorebird reserves. The sites are under the jurisdiction of various government and non-government agencies and provide varying degrees of habitat site protection.

Since 1967, 51 NWAs have been established. New large sites being considered (Iqaliqtuuq MWA) plus other sites proposed for scheduling (e.g., Port Joli, Port Hebert) could bring the total NWA–MWA area to more than one million hectares. While not a large percentage of the total protected area in Canada, the NWA–MWA system helps fill a niche not covered particularly well by other types of conservation areas and provides a superior level of protection compared with most other types of wildlife conservation areas.

As the senior government responsible for migratory bird management, the federal government has a leadership responsibility for protecting key sites. Thus, NWAs have been established to protect key wildlife habitats (mainly for migratory birds and endangered wildlife) across the country. No other agency has that national focus. The ownership and management of some of the key NWA sites help meet international obligations under a number of conventions and agreements (e.g., Cap Tourmente NWA was the first North American site listed under the Ramsar Convention).

The legislative and regulatory instruments used to establish and regulate NWAs are especially effective. Once a site is scheduled under the *Canada Wildlife Act* and established as an NWA (sections 4.1 and 4.2), it cannot be disposed of by the Minister unless it is in the interest of wildlife. Thus, a very high level of protection is afforded to these lands, and they are much less likely to be sold or disposed of for alternative uses (section 9.3). Most provincial, municipal, or privately owned conservation areas do not have such a high level of security. The Wildlife Area Regulations, used to administer and manage NWAs, are an expedient way to permit public use at controlled levels. Those regulations are not paralleled in any other jurisdiction in Canada.

The authority extended to MWAs caused by the 1994 amendment to the *Canada Wildlife Act* gives CWS unique capability in the conservation of marine habitats for migratory birds and endangered wildlife. The Parks Canada Agency has begun a National Marine Conservation Area program. Fisheries and Oceans Canada also has authority to establish Marine Protected Areas (MPAs) under its departmental legislation (the *Canada Oceans Act*). However, the future designation of MWAs for migratory bird habitats of national importance and some species at risk would likely still fall to CWS.

CWS does have other protected area mechanisms to use, such as MBSs and various designations, but none has anything comparable to NWAs for permanence of protection and flexibility of management.

Migratory Bird Sanctuaries

There are currently 92 federal MBSs in Canada, encompassing over 11 million hectares. Some sites in the Arctic are huge, like the Queen Maud Gulf MBS (6.3 million hectares), while others in southern Canada can be as small as a tiny 1-ha seabird nesting island in Ontario. MBSs are established under the authority of the 1917 *Migratory Birds Convention Act* to protect breeding and migrant avifauna against

[29] Canadian Biodiversity Strategy — Canada's Response to the Convention on Biological Diversity, 1995; Conserving Wildlife Diversity — Implementing the Canadian Biodiversity Strategy, 1998, p. 27.

hunting and physical disturbance. The first official MBS was established in 1919 (Last Mountain Lake in Saskatchewan, which, as noted above, was first created in 1887 under another authority) and was followed by dozens more in successive decades when hunting, egging, and other forms of disturbance were considered the main threats. By the 1970s, it was recognized that alteration of habitat was the biggest threat to birds, but MBS designation did not mean habitat protection. There was no provision for habitat protection under the Sanctuary Regulations until a 1974 amendment inserted habitat into section 10(1):

> *No person shall, in a migratory bird sanctuary, carry on any activity that is harmful to migratory birds or the eggs, nests or habitat of migratory birds, except under authority of a permit.*[30]

The permit referred to in section 10(1) can be issued by the Minister if the MBS is located on federally owned lands or by the chief game officer of a province if the MBS is on provincial Crown land.

The permit requirement has been most useful in regulating oil and gas and mining exploration in the huge MBSs located in the Arctic. It has not been used to any significant extent in southern Canada, but it still is a useful regulatory tool in sanctuaries established on Crown land. The provision does not apply to MBSs that have been established on private lands.

Designation of a site as an MBS serves to highlight the significance of that habitat to migratory birds and therefore provides a measure of habitat protection — that being public recognition of importance. Several sites originally established as MBSs have since been purchased by CWS and are scheduled to become NWAs in order to effectively protect and manage critical habitat.

Ramsar Convention on Wetlands

Designation of a site under the Ramsar Convention on wetlands is a significant first step in securing protected status for internationally important wetlands. Significant wetlands that meet the Ramsar selection criteria can be listed under the Convention as being a "wetland of international importance." As of May 2003, there were over 1350 Ramsar sites covering almost 104 million hectares of wetlands globally in 136 Contracting Parties to this Convention. Such listing does not in itself protect the site, but it does impose obligations on the Contracting Parties that listed the site. Listing agencies are asked to practise wise use so as not to destroy the ecological character of the wetland and to develop a management plan for the site, which may result in actions to seek a more substantive level of protection for the site.[31]

Ramsar designation elevates the significance of a major wetland site, which greatly assists in developing follow-up actions to secure and regulate the site. In developing nations, often Ramsar is the only mechanism available to conserve wetlands. However, in Canada, many significant wetlands occur on federal and provincial Crown lands and can be scheduled NWAs, Wildlife Management Areas, or other appropriate protective designations. Sites on private lands are being secured through programs of groups such as Ducks Unlimited Canada, The Nature Conservancy of Canada, partners in NAWMP, and other organizations. Nonetheless, Ramsar designation is a significant first level of protection for wetland sites that are of significant interest to the mandate of CWS.

Seventeen NWAs and MBSs are among the 36 sites in Canada listed under the Ramsar Convention as Wetlands of International Importance. In some cases, such as the Shepody Bay and Mary's Point

[30] Migratory Bird Sanctuary Regulations: PC 1974-1989, 10 September 1974.
[31] The Ramsar Convention Manual, compiled and edited by T.J. Davis, Ramsar Convention Bureau, 1994, 207 pp.

Ramsar sites, NWA or MBS status protects only a critical section of the total site designated as a Wetland of International Importance. CWS has drafted management plans for all NWAs but for only a few of the MBSs in Canada.

Western Hemisphere Shorebird Reserve Network (WHSRN)

In the mid-1980s, an organization of government, university, and non-government agencies formed Wetlands for the Americas and promoted wetland conservation throughout the hemisphere for migratory shorebirds. One of the organization's programs was to establish a network of shorebird reserves known as WHSRN sites.

While designation of the site does not in itself protect the habitat, it focuses public attention on the value of these critical habitats in the migratory pathways of shorebirds. CWS was quick to join Wetlands for the Americas and to lead in the designation of sites. The massive intertidal mudflats of critical importance to fall migrating Semi-palmated Sandpipers in the upper Bay of Fundy were the first Canadian sites (Shepody Bay, 1987; Minas Basin, 1988) to be designated as WHSRN sites.

WHSRN designation of a site in some cases allows for twinning of sister reserves in Central or South America. This has provided professional exchange opportunities for CWS scientists to work with their southern counterparts on research and management projects of significance to conserving hemispheric populations of shorebirds.

North American Waterfowl Management Plan (NAWMP)

NAWMP, signed by the United States and Canada in 1986 (and in 1994 by Mexico), commenced implementation by 1988 via species (e.g., Black Duck, Arctic Goose) and habitat joint ventures. In Canada, three habitat joint ventures — Eastern Habitat Joint Venture, Prairie Habitat Joint Venture, and the Pacific Coast Joint Venture — are bringing partners together, contributing funding and administrative support in implementing a broad mix of wetland conservation efforts, including acquisition. One or more of the implementing partners are usually responsible for wetland securement. Title and management responsibility for the land usually rest with the provinces. To date, over 850 000 ha of wetland and associated upland have been secured under NAWMP in Canada.

Nationally, programs administered via the Plan have resulted in the purchase and development of thousands of hectares of wetland habitat over the past 10 years for the primary benefit of waterfowl. From a policy perspective, the focus of the program is much narrower than the vision of the NWA program. NWA site acquisitions have covered a broad range of habitats for migratory bird species and some species at risk. Also, sites acquired under NAWMP do not have the legislated permanence of protection as do NWAs under the shell of the *Canada Wildlife Act*. However, the NAWMP implementing agreements require the holder of the property (usually a province) to repay the partners if the property should ever not be used as waterfowl/wetland habitat.

NAWMP purchases could potentially help in securing adjacent habitats and infilling at a number of NWAs and MBSs. To date, some NAWMP acquisitions have been in and near sites that are currently NWAs and MBSs. Such land parcels could be transferred to CWS to be scheduled as additions to NWAs or MBSs; however, CWS has to have a capital budget to handle the very considerable land transfer costs of doing so via Public Works and Government Services Canada. Additionally, some wetland parcels, especially in eastern Canada, may have imperfect title or carry restrictive covenants and could therefore not be accepted as federal Crown land. Nonetheless, site purchases by NAWMP

partners within or adjacent to NWAs or MBSs very much augment federal conservation efforts at several important wetland sites.

Acknowledgments

Appendix C incorporates CWS habitat staff views expressed at an NWA–MBS Habitat Workshop held in Toronto, 22–23 February 2000, and through January 2002. It includes materials drawn from two contract reports prepared by Allan Smith of Kakawie Consulting, Sackville, New Brunswick, and A.M. Turner and Associates, Ottawa, Ontario, for the Habitat Conservation Division, Canadian Wildlife Service, Environment Canada, Ottawa, Ontario, in the March–June 2000 period.